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URETERAL STRICTURE

REPORT OF UNUSUAL CASE, ILLUSTRATING INFLUENCE ON FORMATION OF URINARY CALCULI AND ON RECURRING CALCULI

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BALTIMORE

Previous to my first publication on ureteral stricture,[1] in which I emphasized the great importance of ureteral stricture as a disease entity, I had called attention to the probable rôle of focal infections in many of our obscure urinary tract maladies.[2] In classifying the causes of pyelitis in another paper,[3] I mentioned ureteral stricture and ureteral calculus as two different factors in the urinary stasis leading to pyelitis.

It was not long after beginning intensive work on ureteral stricture that I discovered my error in excluding in my first report those cases of ureteral stricture associated with ureteral stone. I then held the commonly accepted view that the dense scar tissue infiltration generally found encapsulating a ureteral stone was due to the irritation of the stone. One of the first facts that occurs to one who stops to think about the subject is that we occasionally find in the ureter a tiny stone or nest of stones no larger than fine grains of sand encapsulated in a dense area of scar tissue. If such stones had been formed in the kidney, they would probably have passed through a normal ureter without the patient's being conscious of them; or if they had stopped in a normal ureter, it would have been in one of the three areas of anatomic narrowing in which, contrary to the literature on this subject, we do not find the majority of ureteral stones.

Soon I found that some patients with ureteral stone on one side had symptoms suggestive of stone on both sides. Investigation of such cases showed bilateral stricture, thus accounting for many of our cases with the so-called "sympathetic" pains or the "renorenal reflex." Again, on investigating, with the wax bulb, cases in which previous roentgenograms had shown a ureteral stone, I obtained a hang not only in the calculous area but in one or more others; in other words, the patient had multiple ureteral strictures, but stone had formed in only one of these stricture areas. In other patients I have found multiple stones, each in a stricture area.

In my experience, ureteral stones are usually found in one of two areas, namely, from 3 to 5 cm. below the pelvic brim, and from 2 to 5 cm. above the bladder, in the very areas in which nearly all of our strictures occur. Many ureteral stones found above the pelvic brim are undoubtedly stones which have formed in a stricture area, and because of the dilatation above the stricture they have become freed and floated upward as migrating stones. Some bladder stones form in a ureteral stricture area and are forced out into the bladder. Such stones in women are usually passed spontaneously. Patients not infrequently give a history of having passed one or more ureteral stones, and because of present symptoms they fear they are about to pass another stone. Investigation shows they are suffering with ureteral stricture.

Many ureteral stones have a wide, tortuous channel on one side through which urine can pass with the utmost freedom. One may argue that such a stone might get crosswise in the stricture area and thus establish a block; but at operation careful investigation shows a dense stricture area, extending above and below the stone, or a second stricture area at some distance from the stone; and in either case it is probably a temporary variation in caliber of the narrow lumen of the strictured ureter, and not the stone, that gives rise to the stasis and symptoms.

Merely from the patient's history and urinalysis no one can decide whether a given attack is due to stricture or to calculus. In the preliminary investigation with the wax-tipped and wax-bulbed catheter, I have on several occasions cleaned a stone out of a stricture area, the calcareous particles being embedded in the wax of the tip and bulb on the catheter's withdrawal, and further investigations with the roentgen ray and wax-tipped catheter have failed to show further evidence of stone. In two instances, calcareous material had been deposited in a stricture area between treatments, the interval being one month in each of these cases. In one case the stone particles were swept out by the wax bulb, and in the other the bulb on its way in was obstructed when it reached the stricture area and, on withdrawal, the wax tip and the distal shoulder of the bulb were deeply gouged as if by a stone. Eight days later the patient passed a flat stone 8 mm. in length and 5 mm. broad.

I have history and roentgen-ray records of several patients belonging to another group of cases that strongly suggest the etiologic relationship between stone and stricture. In this group the patients give a history of discomforts located on one side only, and investigation shows a stricture on that side causing more or less damage to the upper urinary tract. On taking a pyelogram of this side I have been surprised to get a stone shadow in the opposite kidney which has

1. Hunner, G. L.: Stricture of the Ureter, Excluding Tuberculosis and Calculus; Report of Fifty Cases, New York M. J. **104**: 5 (July 1) 1916.
2. Hunner, G. L.: Chronic Urethritis and Chronic Ureteritis Caused by Tonsillitis, J. A. M. A. **58**: 937 (April 1) 1911.
3. Hunner, G. L.: The Treatment of Pyelitis, Surg., Gynec. & Obst. **15**: 444, 1912.

been free from symptoms, and further investigation reveals stricture on this symptomless side.

I now make it a practice not to operate for a stone in the kidney without a thorough investigation of both ureters for stricture; and, as bilateral stricture is usually found in such cases, both ureters are well dilated before the operation. I am certain that this preliminary establishment of good drainage on both sides will in the future save many kidneys from recurring stones, and it will save the second kidney from developing a stone after operation on the kidney primarily affected, a calamity that has occurred far too often in the past.

One of the important problems discussed by those interested in the etiology of renal calculus is the rôle played by infection. I have briefly reviewed the literature on this in a previous publication.[4] Recently, most suggestive laboratory results have been reported from the Mayo Clinic.[5]

There can be little doubt that many stones in the kidney originate from an infection of the urine. In what percentage of cases this urinary infection occurs with the primary damage to the urinary tract, and in what percentage there may have been a previous lesion in the tract, leading to stasis of the urine before it has become infected, are problems for future investigation.

The fact that one may find bilateral stricture, with symptoms on one side only and with a hydronephrosis or pyelitis on this side, and an unsuspected aseptic

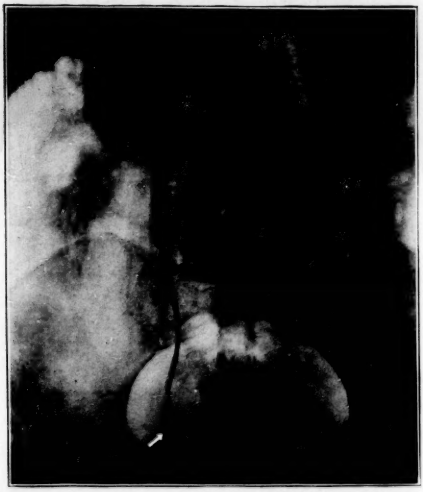

Fig. 1.—Pyelo-ureterogram of right side, taken in April, 1917, showing slightly dilated kidney pelvis and upper ureter; faint shadow of calculus in right ureter about 3 cm. above bladder; multiple phleboliths or calcified glands in left broad ligament region.

stone on the symptomless side, makes one think of the possibility of stone formation without preliminary urine infection. One has difficulty in believing that an infection would clear up spontaneously in the presence of a foreign body, together with stasis from a stricture.

I am watching perhaps a dozen patients who have kidney stones, some of them never having undergone an operation, and others having had one or more operations for previous stones. It is surprising to see their marked improvement in health as soon as they are

Fig. 2.—Plain roentgenogram, taken in January, 1922, showing right kidney pelvis and calices filled with a large calculus; phleboliths or calcified glands about lower end of left ureter.

given good ureteral drainage, to note the rapid increase in the kidney function, the clearing up of a purulent urine in spite of the stone, and to note that the stone in the kidney causes no symptoms. In similar cases watched over for a period of time, the stone in the kidney seems to cause symptoms, and in some it increases in size, the urine remains purulent, and the kidney function decreases. Such cases call for operation unless advanced age or some other factor strongly contraindicates it.

I have approximately 100 roentgenograms made on the many patients whose conditions have illustrated the foregoing theories and facts concerning the relationship between ureteral stricture and stone formation, and I have enlarged on this theme and what it means from the surgical point of view in several previous publications.[6]

The remarkable history of the patient whose condition is illustrated by the accompanying roentgenograms justifies a special report, particularly as her unique records seem to support several of the theories I have been seeking to establish.

REPORT OF CASE

Mrs. P., aged 36, admitted to the gynecologic service, April 1, 1917, complained of severe, sharp pains in the right side

4. Hunner, G. L.: The Etiology of Ureteral Calculus, Surg., Gynec. & Obst. **27**: 252 (Sept.) 1918.
5. Rosenow, E. C., and Meisser, J. G.: Nephritis and Urinary Calculi, After Production of Chronic Foci of Infection, J. A. M. A. **78**: 266 (Jan. 28) 1922.
6. Hunner, G. L.: Ureteral Stricture: Report of One Hundred Cases, Bull. Johns Hopkins Hosp. **29**: 1 (Jan.) 1918 (Footnote 4); Differential Diagnosis in Stricture and Calculus of the Ureter, New York State J. M. **19**: 323 (Sept.) 1919.

of the abdomen and extending down the right leg. She had been married eleven years and had borne six children. Her menstrual and general history were unimportant except for the occurrence of a sore throat every winter for many years. About six years before admission, the patient had what was called an attack of cystitis, lasting about one week, and marked by polyuria, dysuria and macroscopic blood. Since that time she had noticed on several occasions blood in the urine, and this had always been accompanied by frequent and painful voiding. While carrying her youngest child, now 3 years of age, she had what her physician called an attack of nephritis and heart trouble. This was marked by severe abdominal pain, and general anasarca. To avoid premature childbirth she was put to bed, and six weeks later was delivered (with forceps) of a living child at term. About two years later, or one year before her 1917 admission, she began to have rather frequent attacks of pain in the right side and back, and for a month before admission the attacks had become more frequent and severe, with sharp, cutting pain in the right abdomen, radiating into the bladder and down the right leg. She entered the hospital after an attack lasting almost continuously for three days and accompanied by polyuria, dysuria, nausea and vomiting, and collapse.

Investigations by Dr. Walter Holmes, the resident gynecologist, resulted in a diagnosis of calculus in the right ureter and a *Staphylococcus aureus* infection of the right kidney. The roentgen-ray diagnosis was, "kidneys negative, numerous phleboliths around the entrance of the ureter." It is quite evident from Figure 1 that the faint shadow of a stone in the lower right ureter had been overlooked, and that the pyelo-

Fig. 3.—Plain roentgenogram, taken, Aug. 22, 1922, showing five months' uterus with fetus; shadow of enlarged left kidney with multiple calculi, and one calculus apparently at entrance to ureter.

ureterogram, showing a kidney pelvis of about 15 c.c. content and a slightly dilated upper ureter, had been misinterpreted as indicating a normal kidney and ureter. The gynecologic examination revealed a hard, tender nodule in line with the ureter in the region of the right vaginal vault, and the wax-tipped renal catheter met "a definite obstruction about 2.5 cm. above the ureteral orifice," the wax tip on withdrawal being deeply gouged as if by a stone. Three days later, April 5, Dr. Holmes tested with a catheter carrying four wax bulbs at 5-centimeter intervals, and all the bulbs showed scratch marks. He then passed dilating bougies. April 28, he used dilating bougies Nos. 18, 19 and 20 (French) and six days later, May 3, the patient passed a stone measuring 12 by 6 mm., and was discharged on the same day in excellent condition.

Fig. 4.—Plain roentgenogram, taken Nov. 22, 1922, showing eight months' uterus with fetus; child's head at pelvic brim; shadow of enlarged left kidney with recurrent multiple calculi.

Her second admission to the hospital was in January, 1922. At her first admission, in 1917, she was in the early weeks of pregnancy. After her dismissal she progressed well until after the birth of her baby in the fall, when the attacks of pain again appeared on the right side. In the following spring of 1918 the attacks became as frequent as two or three a week, and morphin was necessary at times. She then had an interval of freedom for two years from any severe attacks and took no morphin during this period, although she stated that at no time since the beginning of her severe attacks in 1916 had she been free from soreness and tenderness in the right side.

During the summer of 1921 she first noticed a mass in the right side. About one week before Christmas, 1921, as she was getting into bed one night, she felt a tearing pain in her right side and developed marked soreness. The pain and soreness increased in severity, and hot water bags gave no relief. This attack differed from all previous ones in that there was no respite, and she grew progressively worse for about three weeks until her second admission, Jan. 10, 1922. At this time there was a large, tender mass in the right kidney region, the urine was acid, showed a specific gravity of 1.022, and contained 3.5 gm. of albumin and 50 c.c. of purulent sediment per liter. Microscopically, there were a few erythrocytes, an abundance of pus cells, but no casts. The phenolsulphonephthalein output was 36 per cent. in two hours. Chemical examination of the blood showed a non-protein nitrogen of 29.2 mg. per hundred cubic centimeters. The Wassermann test was negative. A plain roentgenogram (Fig. 2) showed a large calculus filling the right pelvis and its calices, and an indefinite shadow in the dilated upper ureter, probably indicating a collection of purulent material

with precipitated urinary salts. About the region of the lower left ureter were numerous shadows of venous phleboliths or calcified broad ligament glands.

January 17, Dr. Leo Brady did a bilateral catheterization with plain catheters without meeting appreciable obstruction in either ureter. The urine from the left kidney was clear and negative to culture.

Fig. 5.—Appearance twelve days after accouchement forcé and nephrolithotomy: The retention catheter has drawn out of the lower pelvis; calices are of fairly normal form soon after the marked overdistention found at operation. There is no sodium bromid in the ureter, although the patient was voiding considerable urine normally at this time. Shadow of sodium bromid that has flowed back along the catheter and in the dressings.

An intramuscular injection of phenolsulphonephthalein yielded in one and one-half hours from the right kidney 35 c.c. of urine without a trace of color, and from the left kidney 45 c.c. of urine with 30 per cent. of phenolsulphonephthalein.

January 19, Dr. Brady removed the right kidney, which contained a large horseshoe-shaped calculus and much purulent urine, the kidney cortex having been practically destroyed. Fifteen days after operation, an intramuscular injection of phenolsulphonephthalein resulted in two hours in 50 c.c. of urine with 53 per cent. of phenolsulphonephthalein. On the patient's dismissal on the eighteenth day, the bladder urine was normal.

Within three months after her return home she became pregnant with her eighth child, and on Aug. 21, 1922, she was admitted to the hospital for the third time. She was now about five months pregnant and was having trouble with her left kidney.

Her first attack of pain on the left side occurred in October, 1921, three months before her admission for the right nephrectomy. She had a second attack in the left side in June, 1922, and several attacks in the intervening two months. The urine catheterized from the bladder on admission showed a trace of albumin, and a moderate number of erythrocytes and leukocytes, with cocci and bacilli. The two-hour phenolsulphonephthalein output after intramuscular injection yielded 600 c.c. of urine, with 42 per cent. of phenolsulphonephthalein. The nonprotein nitrogen, August 22, the day following admission, showed 29.55 mg. per hundred cubic centimeters, and on August 26, when there had developed definite signs of partial anuria, the nonprotein nitrogen had risen to 96.2 mg. per hundred cubic centimeters.

A roentgenogram (Fig. 3) showed the bony structure of a fetus lying transversely in the uterus, and the shadow of a large left kidney apparently carrying several stones, one of which appeared to lie at about the entrance to the upper ureter. Dr. Brady operated, removing through a pelviureterotomy wound one stone impacted in the upper ureter, and three stones floating in the pelvis. The patient left the hospital in three weeks in good condition, but with an active urinary sinus still present. This closed soon after she reached home.

Her fourth admission was on the morning of Nov. 22, 1922, when she gave a history of complete anuria since 9:30 the previous evening. She entered on the obstetric side because of her eight months' pregnancy. Investigation showed the systolic blood pressure 120; diastolic, 70; erythrocytes, 3,888,000; leukocytes, 16,800; hemoglobin, 44 per cent.; temperature, 99; pulse, 116.

A roentgenogram (Fig. 4) showed the large uterine shadow with the outline of the child's head entering the pelvis. A deep shadow in the upper left quadrant suggested an enlarged left kidney containing four stones, one of them apparently blocking the upper ureter. On physical examination the left kidney, crowded upward and outward by the pregnant uterus, was very prominent and felt as if about to rupture through the lumbar walls. The obstetric service decided to perform an accouchement forcé, and with the aid of Barnes' bags the delivery was accomplished in the afternoon, but the patient passed no urine up to midnight, when I was called to operate, twenty-seven hours after complete anuria had set in. Under

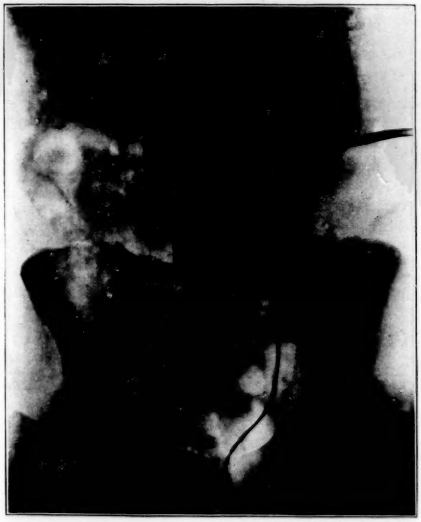

Fig. 6.—Attempted pyelo-ureterogram, Dec. 14, 1922: First attempt to dilate the patient's ureteral strictures while the lumbar retention catheter was still draining the kidney; evident puncture of the ureter at about the pelvic brim, showing periureteral escape of sodium bromid and slight reflux into lower ureter.

combined local and gas anesthesia, the kidney was entered through the distended cortex at the area which appeared first in the scarred tract of the former lumbar incision. The pelvis was found distended to a diameter of from 8 to 10 cm.; the four stones were found free, and were removed with the aid of the stone forceps.

I placed one mushroom retention catheter and two rubber drainage tubes in the pelvis, and in the first ten hours after operation 1,100 c.c. of bloody urine was collected in a bottle, in addition to a large amount of drainage necessitating frequent changes of the wet dressings. In spite of this overactivity of the kidney in carrying off water, the nonprotein nitrogen showed an increase from 45.5 mg. before the

Fig. 7.—Plain roentgenogram, taken Jan. 10, 1923, showing two stones in left kidney region two weeks after the lumbar drainage tube had come out; lower stone probably already engaged in upper ureter.

accouchement forcé to 61.2 mg., eight hours after the kidney drainage was established. The patient made an uneventful recovery, and twelve days after operation we obtained a pyelogram (Fig. 5) in order to study the position of the retention catheter drainage tube, which still remained.

It was my object to persist with lumbar drainage until I could, by the bladder route, thoroughly dilate the ureter which, from the patient's previous history, I felt certain must be strictured. On noting the withdrawal of the mushroom catheter from the kidney pelvis (Fig. 5), I removed it completely and introduced a male rubber catheter to be left until the ureteral dilations could be completed. Figure 6 shows the male catheter in the left kidney and the results of an effort to dilate the ureter and get a pyelogram, December 14, twenty-two days after the operation. The No. 7 renal roentgen-ray catheter was apparently obstructed in the broad ligament region, and again at about the pelvic brim region. The patient made no complaint about the introduction of the catheter, but as soon as the bromid solution began to flow by gravity the patient complained of an unusual amount of pain in the lower left quadrant. The roentgenogram was taken after a flow of 10 c.c. of sodium bromid solution, and it is evident that the catheter had punctured the ureter at the pelvic brim and that the bromid solution had diffused into the periureteral tissues. The only untoward result apparent from this was that the patient's temperature ranged from one to two degrees higher for two days, and she passed no urine through the bladder for four days. My interpretation of this was that the resulting ureteritis and periureteritis were sufficient to close completely an already narrowed stricture area.

The patient begged to go home for Christmas. December 23, the leukocyte count was 8,600, and hemoglobin 60 per cent. We urged her to return to the hospital at once if the kidney drainage tube ceased draining or came out. The tube came out after she had been home one week; her physician was called and found that she had a normal temperature, was passing urine freely through the bladder, and had no pain in the kidney region. With these data at hand, and because of our neglect to inform him of the importance of permanent kidney drainage until we could establish free ureteral drainage, he naturally advised the patient that the tube could be dispensed with.

Within two weeks the patient began to have slight pain in the kidney region, with a slight elevation of temperature. On her return to the hospital, Jan. 10, 1923, we obtained a plain roentgenogram (Fig. 7) showing that two stones had formed and that one was probably causing partial obstruction in the upper ureter. At the same sitting we attempted to get a pyelo-ureterogram (Fig. 8). On the introduction of from 2 to 3 c.c. of sodium bromid solution, the patient complained of pain in the lower ureter, and the ureterogram showed the dilated pelvic ureter with probable narrowing at the pelvic brim region and in the bladder wall region. None of the fluid showed above the pelvic brim.

Although the patient was passing urine freely through the bladder, she seemed to be developing a toxemia with increasing pain in the left side, and a rising temperature, which reached 103.4 F. on the day of operation. The nonprotein nitrogen, January 11, showed 38 mg. per hundred cubic centimeters. I had hoped to defer operation until I could get the ureter well dilated from below and carry the patient along for a few months of recuperation, but the rapid developments pointing to impending uremia made operation seem imperative. I operated, January 13, this being the third operation on the left kidney in less than three months, the right kidney having been removed within the year. Because of the two previous drainage operations from the lumbar approach, I feared damage to the kidney substance, and difficulties in handling the pelvis and ureter if another lumbar approach was attempted. I therefore made a left semilunar line incision, and, as anticipated, the adherent peritoneum was torn in several places before the pelviureteral region was reached. The

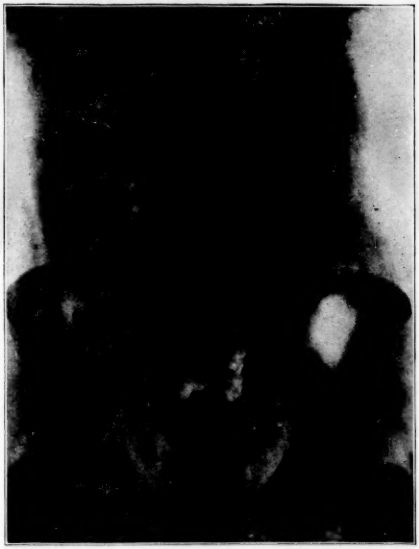

Fig. 8.—Attempted pyelo-ureterogram, Jan. 10, 1923: To avoid any risk of another puncture of the ureteral wall at the pelvic brim region, the bismuth catheter was introduced only a few centimeters. From 2 to 3 c.c. of sodium bromid solution caused pain in lower left quadrant. There is apparent blockage at the pelvic brim region.

peritoneal cavity was well protected before the thickened edematous pelvis was opened. The larger stone was easily found lying free in the pelvis. The calices just admitted the tip of the index finger and the smaller stone could not be palpated, nor could it be sounded with the stone forceps feeling about in the calices. On passing a No. 9 renal catheter

with a small wax bulb placed near the end of the catheter down the ureter, I encountered three obstruction areas before reaching the bladder, and on withdrawing I felt three "hangs," one near the bladder, one at about the pelvic brim region, and one within 4 or 5 cm. of the kidney. The bulb was deeply gouged as if by a stone. With a metal probe a stone was sounded a few centimeters below the kidney, and the stone

Fig. 9.—Attempted pyelo-ureterogram, Feb. 6, 1923, about three weeks after patient's last operation: Two drainage tubes have replaced the original catheters and have probably retracted from the kidney pelvis and are now draining the sinus tract out through the anterior abdominal incision. The stricture area at the pelvic brim region and the much dilated abdominal ureter may be noted. There is apparently a slight seeping of the sodium bromid solution through a narrow area in the upper ureter into the kidney pelvis.

forceps easily brought up a quadrilateral stone corresponding in size and shape to the smaller shadow seen in Figures 7 and 8. Three other No. 9 renal catheters carrying bulbs of increasing sizes were passed so as thoroughly to dilate the ureter. Each of these demonstrated the three obstruction areas, and the last bulb made a dilatation of 6.6 mm. (20 F.).

Two drainage catheters, one with a mushroom head, and one plain, were sutured in the pelvis with plain, fine catgut, and the peritoneum was protected with free drainage.

Figure 9, taken Feb. 6, 1923, shows another attempt to get a pyelo-ureterogram. The abdominal portion of the ureter is shown for the first time; it is widely dilated from the narrow stricture area near the pelvic brim up to an area near the kidney. Here the roentgenographic solution stops rather abruptly, whether from an intrinsic stricture area or from periureteral inflammatory conditions compressing the lumen at this point cannot be stated from the picture. A slight amount of the solution has reached the kidney pelvis, and some has flowed back past the catheter into the pelvic ureter, which was shown to be dilated in Figure 8.

The patient was presented before the Johns Hopkins Medical Society, March 5, 1923. At that time we had passed wax bulbs up to 5 mm. in diameter, placing the bulb within 3 cm. of the tip of the catheter so it would reach entirely into the kidney. The abdominal drainage had been retained until the entire ureter had been dilated several times. At the time that the last drainage tube was removed, the culture taken from the kidney pelvis through the renal catheter showed a mixed infection of colon bacillus, *Bacillus pyocyaneus* and staphylococcus. Within three weeks after the drainage tube was removed, the kidney culture was negative and there was complete absence of leukocytes or other pathologic elements in the urine. This was the best evidence that we had finally established (at least temporarily) good drainage through the ureter.

The following notes describe the course of the patient from the time she was shown before the Medical Society up to her last visit on Sept. 4, 1923, almost eight months after her last operation.

March 16, a two-hour phenolsulphonephthalein test after intramuscular injection yielded, first hour, 300 c.c. of urine, and 40 per cent. of phenolsulphonephthalein; second hour, 75 c.c. of urine, and 15 per cent. of phenolsulphonephthalein. This 55 per cent. of phenolsulphonephthalein compares favorably with the 36 per cent. output before the right nephrectomy in January, 1922, the 53 per cent. fifteen days after that operation, and the 42 per cent. in August, 1922, when the patient was admitted with a five months' pregnancy and beginning obstruction by a pelviureteral stone.

It shows the tremendous repair capacity of the kidney in the face of three operations within three months. This recovery of working ability was aided, no doubt, by the fact that we had been successful in restoring good drainage. The patient was discharged, March 29. We had kept up the dilations at ten-day intervals and had reached a 6 mm. bulb. The large bulbs always gave a distinct hang over a diffuse area in the kidney region 28 cm. from the external urethral orifice, a second at the pelvic brim region 18 cm. from the exterior, and a third in the bladder-wall region about 1.5 cm. above the ureteral os.

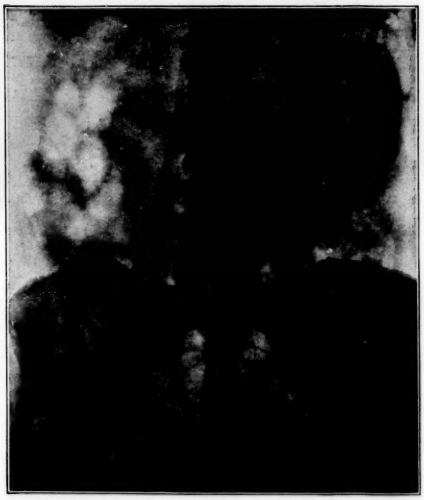

Fig. 10.—Pyelogram, March 28, 1923: A preliminary plain plate was negative for stone. To be noted are: the large shadow of a compensatory hypertrophy of the kidney; the large pelvis, holding 23 c.c.; the displacement of the upper ureter due to past operations and inflammatory processes; the renal catheter bending downward in the pelvis, and showing sufficient catheter within the pelvis to insure entrance of the wax bulb placed 3 cm. back of the catheter tip.

Pictures were obtained the day before dismissal (Figs. 10 and 11). A plain plate taken the same day was negative for stone. Figure 10 shows enough of the roentgen-ray catheter in the kidney pelvis to insure the entrance of the bulb, which was placed 3 cm. back of the tip of the catheter. Figure 11

shows the catheter withdrawn until the tip is below the pelvic brim.

Fortunately, the fluid returned fairly promptly and the patient showed no reaction of pain or temperature elevation after the pyelo-ureterogram. I did not attempt to introduce more fluid into the ureter after partially withdrawing the catheter, for experience has taught the great danger of trapping the pelvis fluid if there is an overfilling, and this procedure is particularly hazardous in a patient with only one kidney.

Fig. 11.—Pyelo-ureterogram, March 28: The faint shadow of the upper ureter with slightly dilated tortuous lumen is at a point a few centimeters below the kidney; the ureter is manifestly not filled, which probably indicates a tendency to trapping of fluid in the pelvis. Compare with Figures 8 and 9.

The patient returned at our request, April 26. She had improved in color, gained in weight, and had no complaint. A 4.6 mm. bulb was passed and plainly detected, all three stricture areas showing the tendency to contraction after a rest from the early dilations.

Again, at our request, the patient returned, May 29. She had been having slight backache in the kidney region for a week, and occasional neuralgic headaches. A 5 mm. bulb failed to go through the stricture area next the kidney.

We decided to keep her in the hospital for investigation of the sinuses and tonsils. Abscessed teeth had been removed in January, and we had been deferring removal of the diseased tonsils because of her multiple emergency operations. The tonsils were removed, June 7, and before dismissal, June 15, the ureter was dilated with a 4.3 mm. bulb, which went through the upper stricture with difficulty. The urine was normal and free from culture growth. A plain roentgenogram was negative for stone, and a pyelo-ureterogram (Fig. 12) showed a fairly wide ureteral lumen except at the pelviureteral junction.

The patient was last treated, Sept. 3, 1923, almost eight months after her last operation. She had no complaints and claimed better health than since she began childbearing sixteen years previously. Since June she had gained in weight from 112 to 127 pounds (51 to 58 kg.). The urine was negative microscopically and to culture. A plain roentgenogram with excellent definition was negative for stone. A 5.3 mm. bulb passed entirely into the kidney with comparative ease.

CONCLUSIONS

What practical deductions may be drawn from a study of this unusual case? Viewed by itself, we should probably get no lesson of special importance; and, if reported at all, it would be for the sake of recording what can be done surgically, and still have a living, optimistic and smiling patient. Viewed in the light of an experience with a considerable number of similar patients, an experience that leads to the observations with which this report opened, I think we are justified in the following very practical conclusions:

If this patient had been seen by some one familiar with ureteral stricture work when her first symptoms of cystitis, such as polyuria, dysuria and hematuria, began six years before her first hospital admission, the diagnosis of ureteral stricture could have been made promptly, and proper treatment would have prevented the formation of the first ureteral stone. Had the patient not been seen until her first hospital admission, and had we thoroughly appreciated at that time the importance of ureteral stricture in stone formation, the patient would have been followed with ureteral dilations after the passage of the ureteral stone. With the consequent good kidney drainage, it is quite likely that the staphylococcus infection of the right kidney pelvis would have cleared up and she would not have formed the large kidney stone.

Fig. 12.—Pyelo-ureterogram, June 14, 1923: The area just above the bladder is narrow, and the pelvic ureter is dilated; compare with Figure 8. The narrow area at the pelvic brim and the dilated abdominal ureter should be compared with the same features in Figure 9. There is marked narrowing at the pelviureteral junction, and there is a slight mixture of sodium bromid with the urine in the kidney pelvis. There are so-called "kinks," but a wide lumen, opposite the third lumbar joint, and the outward misplacement of the upper ureter and pelviureteral region, probably due to the former operations. A preliminary plain roentgenogram was negative for stone.

If, at the time of her first admission, we had appreciated the fact that ureteral stricture is almost always bilateral, and if we had observed the evidence of a

former inflammatory condition about the lower left ureter, as furnished by the shadows of phleboliths or calcified glands in this region, we should have begun ureteral stricture dilations on this side, in spite of the fact that the patient had not as yet had symptoms on the left side. To these ureteral treatments would have been added the attention to focal infections, and it is almost certain that instead of being a much mutilated woman with only one kidney and a questionable prognosis for the future, this patient would have enjoyed normal health and would now be the possessor of two good kidneys.

Such conclusions, if founded on this one case, would seem revolutionary, bizarre and highly speculative. Founded as they are on an experience with some 2,000 ureteral stricture cases, in which I have had opportunities for studying the effects of stasis on many of our common urinary tract lesions, including the formation of calculus, and the occurrence of renal infections, I think they carry enough basis of fact to make an open-minded surgeon, having the care of similar cases, wish for at least a clinical test of the theories proposed.

EFFECT OF AURICULAR FIBRILLATION ON FUNCTIONAL ABILITY OF THE HEART *

THEODORE B. BARRINGER, JR., M.D.
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A heart beating irregularly does not expel as much blood per minute as a heart beating with regular rhythm, other factors, such as rate, size of heart, and condition of the muscle fibers, being equal. This is a quite generally accepted teaching of physical physiology. The establishment of a normal rhythm in auricular fibrillation by means of quinidin sulphate ought, therefore, to improve the heart's efficiency, and a number of reports have already appeared in which just this end was achieved.

The use of graduated exercise to build up the reserve power of the heart in patients with auricular fibrillation has been an interesting experiment, and the results, a few of which are here reported, may throw some light on the problem of handling these patients and afford clinical confirmation of the physiologic dictum stated above. One case, in particular, offered very convincing evidence that the reserve power of the heart can be increased much more when the normal pacemaker is in control than when the auricles are fibrillating.

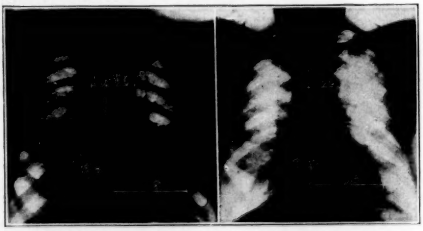

Fig. 1 (Case 2).—Size of heart: at left, April 30, 1923, transverse diameter, 17.6 cm.; at right, July 18, transverse diameter, 14.6 cm.

There is one class of patients with auricular fibrillation that is helped decidedly by graduated exercise. They are young or middle aged, have no valve lesions, and give no history of heart failure. Their chief complaint is palpitation during physical exercise or mental excitement, but their cardiac reserve power is not markedly decreased. The following case is one of this type:

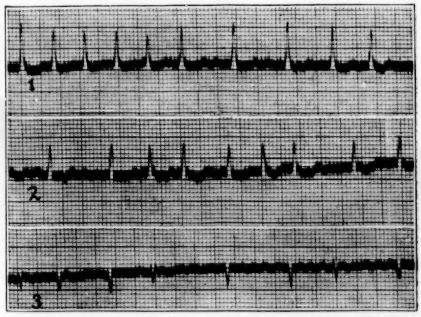

Fig. 2 (Case 2).—Condition, April 30: auricular fibrillation; ventricular rate, about 140 a minute; R inverted in Lead 3 (slight left ventricular predominance); T small in all Leads.

CASE 1.—M., a man, aged 36, after a moderately severe attack of influenza in 1914, noticed that his heart began to fibrillate; the fibrillation continued until Dec. 13, 1920, when I first examined him. His heart was fibrillating, rate, 120, and pulse 98. The systolic blood pressure averaged 116. There were no valve lesions. His chief complaints were palpitation and breathlessness on exertion. Swinging a 10-pound dumbbell twenty times increased the heart rate to 162 and the systolic pressure to 142, and he became quite short of breath. He was given graduated exercise by means of swinging dumbbells. After two months he showed much improvement. The heart rate was constantly below 100, and the pulse deficit averaged between 10 and 15. He was able to swing a 15-pound dumb-bell thirty times without distress and with normal circulatory reactions (the pulse rate immediately after exercise was 120). Palpitation was decidedly decreased, and the patient's general health, as shown by his ability to work, to exercise and to sleep, was much improved. He said he felt better than he had for years. In September, 1921, he was given three doses of quinidin sulphate of 0.4 gm. each. His heart became regular and has continued so up to the present date, although he has had no more quinidin. Digitalis was not given at any time.

We were able to increase the reserve power of the heart in this patient very decidedly, although the auricles were fibrillating. After the sinus rhythm was restored, he did not take any regular exercise. Had he done so we might have succeeded in increasing his reserve power much more and in a shorter time than was possible during the fibrillating period.

There is another class of patients suffering from auricular fibrillation in whom the cardiac reserve power is much decreased, whom it is necessary to digitalize, and who can exercise but little on account of the resultant tachycardia. The following experience concerns a patient of this type:

CASE 2.—J. M., a man, aged 53, had noticed palpitation first in October, 1921. In January, 1922, auricular fibrillation without valve lesion was diagnosed. During the summer of 1922,

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1 gm. of quinidin sulphate daily was given for one month with no effect on the heart rhythm. The patient took digitalis intermittently until I first saw him, in March, 1923. He complained of oppression over the heart, palpitation, and a sense of breathlessness. He was in bed and his heart was fibrillating, the rate being 160. There were no evidences of congestion anywhere. Digitalis was given, and on April 30 graduated exercises were begun. The heart rate was from 96 to 100, and the blood pressure averaged between 86 and 96. The first time he exercised he swung a 5-pound dumb-bell ten times, which increased his heart rate to 150. Digitalis was continued, and each day he was given exercise. By May 24 he was able to swing a 10-pound dumb-bell fifteen times without distress, although it increased the heart rate to 150. During the next two weeks we were able to increase his exercise but slightly, and things seemed at a standstill. The patient had made definite progress, but it was very slow. He was distinctly better, could walk more, slept well, and was not bothered as much by palpitation. We felt that we had nearly achieved the maximum of improvement possible with digitalis and exercise, and decided to see what another experiment with quinidin would do. He was accordingly given quinidin sulphate in divided doses: June 8, 1.2 gm.; June 9, 1.6 gm.; June 10, 2 gm.; June 11, 2 gm.; June 12, 2.9 gm.; June 13, after 2 gm. was taken, the sinus rhythm was reestablished. June 18, graduated exercises were resumed. By June 29 the patient was able to swing a 10-pound dumb-bell twenty-five times with normal reactions (the pulse rate before this exercise was 76 and immediately after, 96). In eleven days, therefore, we were able to bring him up to the amount of exercise which it required six weeks of careful supervision to achieve while his heart was fibrillating and under the influence of digitalis. By July 20 he was able to swing two 15-pound dumb-bells twenty-five times with normal reaction. The systolic pressure increased from an average of between 86 and 96 before the quinidin to an average of between 106 and 110 afterward. During this second period of training he received 1.5 gm. of quinidin daily. No digitalis was given subsequent to June 6. The teleroentgenograms (Fig. 1) show a decrease in size of the heart amounting to 3 cm. in the transverse diameter, to be attributed probably to his physical training. The electrocardiograms (Figs. 2, 3 and 4) show the change from fibrillation to sinus rhythm and further slight changes after the second period of training. At present, Sept. 30, 1923, he is taking 0.5 gm. of quinidin sulphate daily, is exercising regularly, and feels better than he has felt for years.

The slow and very moderate progress made in increasing the cardiac reserve power of this patient while his heart was fibrillating contrasts sharply with

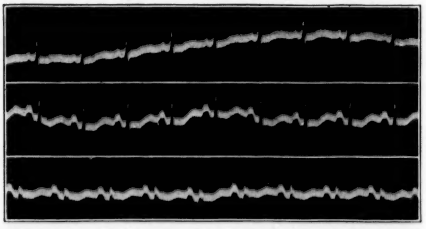

Fig. 3 (Case 2).—Condition, June 14: normal rhythm; rate, about 76 a minute; R upright in Leads I, II and III, but small; P, broad in Leads 2 and 3, and with a suggestion of a double summit; T, broad in Leads 2 and 3.

the rapid and marked progress made as soon as the sinus rhythm was restored.

We have seen two patients with heart failure accompanied by auricular fibrillation in whom the reversion to flutter in one patient and to sinus rhythm in the other, as a result of quinidin, caused rapid general improvement and the disappearance of an edema which had persisted in spite of much digitalis and dieting. A number of such cases have already been reported.[1]

These patients and the one whose history I have reported at length furnish significant clinical evidence in support of the view that auricular fibrillation influ-

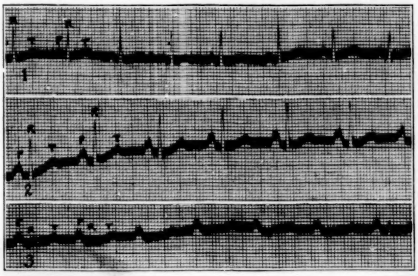

Fig. 4 (Case 2).—Condition, September 28: The P waves show more pronounced evidence of auricular hypertrophy; the R waves are changing slowly to the left ventricular predominance type; the T waves show a tendency to return to normal.

ences the heart's efficiency detrimentally, whether the heart is recovering from failure (insufficiency) or whether we are endeavoring to increase the cardiac reserve power of a patient free from any evidence of failure.

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THYROIDECTOMY: A FURTHER MODIFICATION IN TECHNIC*

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OMAHA

To a careful observer, the appearance of the neck, following a good percentage of thyroidectomies, is far from satisfactory. The Kocher flap, which separates the platysma muscle from the underlying deep fascia, is followed by a deposit of scar tissue between these two layers, frequently resulting in a wrinkled skin over a more or less brawny induration. The reunion of the sternohyoid and sternothyroid muscles, when cut across for additional exposure, adds to a local deposit of scar tissue beneath this flap, and quite often leaves, in addition, a more or less conspicuous nodule, which patients frequently complain of. The almost constant and most undesirable postoperative deformity, however, is the adhesion between the skin and the trachea, due to the muscles being separated over the trachea for exposure of the gland and to the previous path of the drainage tube, which was brought out through the midline. This adhesion also greatly deepens the suprasternal notch.

In men, such more or less minor postoperative sequelae are of negative significance; but in women who desire to dress in such a manner that the neck is exposed, the postoperative appearance resulting from surgery of the thyroid is far from favorable. With them the face and the neck cannot demand too great a

1. Korns, H. M.: An Experimental and Clinical Study of Quinidin Sulphate, Arch. Int. Med. **31**: 36-55 (Jan.) 1923.

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refinement in surgery, particularly in the control of scar tissue in and beneath the superficial structures.

I recently reported [1] a modification of the standardized Kocher-Mayo technic, which did away almost completely with the postoperative deformities mentioned above, but up to that time I thought this modification was limited to the small and the medium sized goiters. Since making that report I have operated on a sufficient number of very large goiters to become convinced that, with a further modification in the technic, the transverse section of muscles and the various previously mentioned postoperative deformities can be entirely done away with in operating on all nonmalignant goiters of any size, above or below the upper border of the sternum.

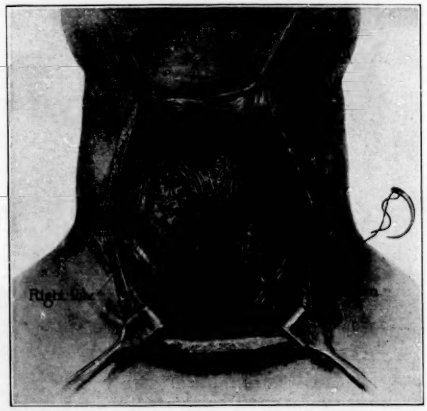

Fig. 1.—On the right side, the right lobe is exposed through a lateral split muscle incision through the bodies of the sternohyoid and sternothyroid muscles; on the left side, the gland has been resected and the sternothyroid and sternohyoid muscles reunited in separate layers.

TECHNIC

The depth of the Kocher incision, which is universally practiced today, extends only to the deep cervical fascia, making a flap composed of skin, fat and platysma muscle. I carry this incision one layer deeper, cutting through the deep fascia, which necessitates a ligation of the anterior jugular veins which lie in this layer. The flap thereby contains one more layer and is easily reflected by sharply dissecting the fascia from the muscles beneath (Fig. 1). We have then presenting the uncovered sternohyoid and a portion of the sternomastoid muscles, and the appearance of the field of operation is entirely different from the one resulting when the original Kocher flap is reflected. After a little practice, this flap can be made as quickly as the original and with much less necessary hemostasis.

The next step is the exposure of the lobe to be resected, which is done by incising, directly over the lobe, through the bodies of the sternohyoid and sternothyroid muscles, one inch or more lateral to the midline (Fig. 1). This lateral incision through the bodies of the muscles gives ample exposure for removing the isthmus and the superior lobe, even if the latter lies extremely high or behind the trachea. The external border of the gland is easily exposed by outward retraction of these split muscles, and as the resection is carried toward the midline the isthmus is easily exposed by retracting the inner border of this split muscle incision. If the opposite lobe requires resection, a second muscle splitting incision is carried through the bodies of the sternohyoid and sternothyroid muscles on the opposite side, the same distance from the midline (Fig. 1). The old midline incision over the trachea I have done away with entirely, thereby preventing all adhesions between the trachea and the skin. When drainage is necessary, small one-eighth inch rubber tubes are brought out through these lateral muscle split incisions (Fig. 1), and if removed within seventy-two hours they do not increase the line of the scar in the skin (Fig. 2).

Following the lobe resection, the split incision through the lateral muscles is loosely closed in two layers with 00 plain catgut, which allows these muscles more readily to return to their independent action, and in turn helps to hasten the normal extension of the neck (Fig. 1). Exacting hemostasis is carried out on the inferior surface of the flap before the line of incision is closed with 0 plain gut, which passes through the deep fascia and platysma muscle.

The definite advantages of this technic are readily noticed by the nurses, assistants and patients. The flap heals readily with no induration beneath, and the patient is not forced to hold the neck flexed for a week or two as when the muscles are divided, extension being carried out freely within a few days. The thicker flap and undivided muscles also leave the platysma muscle sliding freely over the deep fascia as it normally does, preventing the wrinkled skin over the brawny induration.

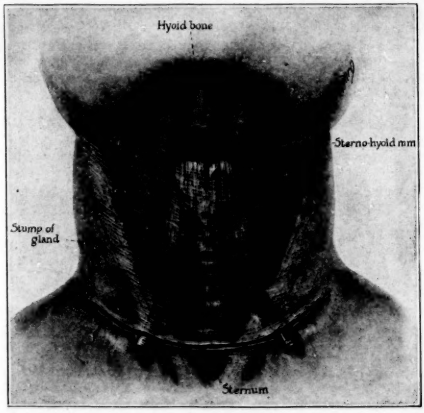

Fig. 2.—The operation completed with the lateral incisions closed and the drainage tubes coming through lateral to the midline.

Following this technic, the appearance of the neck is far more satisfactory than when the Kocher flap, the midline separation and transverse section of the deep muscles, together with midline drainage, are used.

820 Brandeis Theatre Building.

1. Roeder, C. A.: Thyroidectomy: A Modified Technic, J. A. M. A. 79: 2066 (Dec. 16) 1922.

OSSIFICATION IN A CHALAZION *

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AND
FREDERICK C. CORDES, M.D.
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History.—J. M., a man, aged 38, reported to the clinic, April 26, 1922, complaining of poor vision and inflamed eyes. He had had chronic inflammation of both lids for the last fifteen to eighteen years. The condition had improved at times only to become aggravated on slight irritation, as by wind or dust. Within the present year, the lids seemed worse and the eyes watered a great deal. For the last seventeen years the patient had noticed a swelling or lump in the right lower lid. This began as a stye, which did not come to a head, but gradually increased in size over a period of several months. Since that time it had not changed materially. It was not painful or tender but, as it had become large with a tendency to make the lid heavy, the patient requested that it be removed. The vision of the right eye had been poor for the last eighteen years; the loss of sight was rather sudden and had remained unchanged. The eye had never been inflamed or painful.

Examination.—Vision of the right eye was limited to counting fingers at 10 feet; of the left eye, 0.5. Examination of the right eye revealed mild ectropion; the conjunctiva reddened and velvety in appearance with considerable swelling, and no follicles or scars present. In the lower lid midway between the canthi and below the ciliary margin was a tumor mass which was firm, not tender, and not adherent to the skin. On eversion of the lid, the mass presented under the conjunctiva. Examination of the cornea, anterior chamber and iris was negative. The fundus presented small lenticular opacities, and floating opacities in fluid vitreous; the disk was not remarkable; in the macula region was an old degenerative process.

The left eye presented mild ectropion; the conjunctiva appeared as described above. Examination of the cornea, anterior chamber and iris was negative. The fundus presented floating opacities, fluid vitreous, and several scattered spots of old choroiditis; the disk was not remarkable.

The lid condition was diagnosed as chronic catarrhal conjunctivitis, with fibroid chalazion of the right eye.

The chalazion was excised through the conjunctival surface in the usual manner. On cutting through a dense fibrous layer, the instrument grated against a bony-like substance. The mass was dissected free from surrounding tissues and removed. Because of its apparent bony structure, the mass was decalcified, and microscopic sections were prepared. Examination of these showed true ossification with the usual haversian systems present.

Much has been written concerning chalazia: Fuchs [1] defines a chalazion as a chronic inflammation of a meibomian gland with proliferation of the gland epithelium and a consecutive chronic infiltration of the surrounding connective tissue; a chronic adenitis and periadenitis of the meibomian gland.

Parsons [2] states that there are degenerative changes so that in old chalazia the entire contents may be liquefied and may form a cyst with a thick, fibrous wall. This peculiar chronic inflammation produces granulation tissue containing giant cells. Because of the presence of these giant cells, chalazia were regarded for a time as tuberculous in nature. Weiss,[3] Deutschmann,[4] Landwehr [5] and others showed that they were not tuberculous but that the giant cells were the type found in the usual granuloma, although, as has been pointed out, ordinary chalazia in tuberculous subjects may contain tubercle bacilli. Hála [6] and others found xerosis bacilli in chalazia, while Prioux eau [7] found staphylococci, diplobacilli, Friedländer's pneumobacilli and streptococci. He considers staphylococci as the causative agent. Buri [8] shows that a chalazion is in no way related to acne, as was supposed by such men as Salvazeo and Lafond.

In brief, we have in a chalazion a chronic inflammation which produces connective tissue from which it is possible for ossification to take place.

In discussing the presence of bone about the eye, we must consider two separate entities; namely, osteomas and ossification. Osteomas of the orbit have been described by numerous men. Blake [9] described one in which the tumor extended back into the apex of the orbit, and apparently invaded the frontal sinus.

Section through tissue removed showing true ossification.

Osteomas of the ocular conjunctiva are rather rare; Shumway,[10] reviewing the literature in 1903, found only twelve reports. They were first described by von Graefe,[11] in 1863, and later by Critchett,[12] Watson,[13] Hartridge,[14] Loring,[15] Snell,[16] Heustis [17] and others. They always occur in the upper and outer quadrant between the tendons of the superior and external recti; they are always congenital. According to Parsons,[18] they may be definitely classified among the teratomas, and are probably examples of atavism, a reversion to the types in which plaques of bone are found in the skin. They are always in the conjunctival stroma, and are movable over the normal sclerotic. The tumor is usually convex on the upper and flattened on the deep

* From the Department of Ophthalmology, University of California Medical School.

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Meeting of the American Medical Association, San Francisco, June, 1923.

1. Fuchs: Arch. f. Ophth. **24:** 2, 1878.
2. Parsons: Pathology of the Eye **1:** 10.
3. Weiss: Klin. Monatsbl. f. Augenh. **29:** 206, 1891.
4. Deutschmann: Beitr. z. Augenh. **1:** 109, 1891.
5. Landwehr: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's) **16:** 2, 1894.
6. Hála: Ztschr. f. Augenh. **6:** 371, 1901.
7. Prioux eau: Ann. d'ocul. **119:** 449, 1897.
8. Buri: Beitr. z. Augenh. **8:** 207 (Dec.) 1909.
9. Blake: Ophth. Rec. **22:** 419 (Aug.) 1913.
10. Shumway, E. A.: Tumors of the Conjunctiva, J. A. M. A. **41:** 769 (Sept. 26) 1903.
11. Von Graefe: Klin. Monatsbl. f. Augenh. **1:** 23, 1863.
12. Critchett, Anderson: Tr. Ophth. Soc. **2:** 254, 1882.
13. Watson: Tr. Path. Soc. **22:** 227, 1881.
14. Hartridge: Tr. Ophth. Soc. **15:** 51, 1895.
15. Loring: New York M. J. **37:** 12, 1883.
16. Snell: Tr. Ophth. Soc. **4:** 31, 1884.
17. Heustis: Ann. Ophth. **8:** 18, 1899.
18. Parsons: Pathology of the Eye **1:** 137.

surface. The haversian systems are roughly arranged around thin walled blood vessels, and contain typical bone corpuscles. True osteoma of the palpebral conjunctiva has not been recorded.

Osteomas of the eyelids are exceedingly rare. Sbrana [19] described a congenital example in the upper lid of an Arab, aged 44, while Greco [20] reports an osteoangioma of the lid which he describes as being half the size of a mandarin orange.

The case reports of ossification in the eye are numerous. Pagenstecher's [21] report was the earliest important paper on ossification in the eye. He proved that the bone originated in newly formed fibrous tissue or in normal tissues after they have undergone atrophic changes, and that it grew in the same manner as the normal periosteal bone. As Parsons [22] states, formation of bone is not confined to the choroid; it often appears in the detached retina and in cyclitic membranes; it may surround the lens and actually penetrate its capsule, or it may form a mass that occupies the whole of the vitreous chamber. Alt [23] reports a case in which, in a number of sections of the optic nerve posteriorly to the entrance of the central retinal artery, there was a small, irregularly shaped body composed of bone tissue. Demaria [24] also reports a case of ossification of the optic nerve. In Vasiliades' [25] case there was ossification of a hyaloid membrane.

Bussy,[26] in speaking of ossification of the eye, says that the ossifications that have a teratologic origin and result from an anomaly in the phenomena that preside over the formation of the crystalline lens and optic cup are rare. They take the form of small, benignant tumors under the conjunctiva: osteomas of the conjunctiva. Others, rarer still, are also situated under the conjunctiva, but they are of inflammatory origin and their chief cause is trachoma. They represent the transformation of newly formed connective tissue into bone. They are accompanied by hyaline or amyloid degeneration, and are spoken of as instances of ossifying conjunctivitis.

The case reports of ossification in the lids are very rare. In reviewing the literature, we were able to find only two cases:

Anderson,[27] in 1848, described a case in a patient of 26 who, eighteen months previously, observed under the skin of the left lower lid a small tumor about the size of a large pin point. This grew rapidly, and "in the course of a month had acquired the size of a field bean." The mass consisted of concentric osseocalcareous layers enclosed in a cartilaginous shell. He concluded by saying: "I am at a loss to account for the origin of this body."

Vavoolin's [28] patient, a country woman, aged 24, had numerous white grains in the thickened fornices of both lower lids and on the caruncles, semilunar folds and the conjunctiva of the left upper lid. Microscopic examination showed them to possess the structure of true bone with complete haversian systems and bone corpuscles. Only the deeper part of the nodules consisted of bone; the more superficial portion showed the appearance of amyloid degeneration. There was no evidence of antecedent trachoma.

Ossification usually takes place in old inflammatory processes of long duration. It occurs at all ages, and has been found from 11 to 102 years.

In our case we have a condition that clinically had all the characteristics of a chalazion with a history of seventeen years' duration. The question of trachoma can be ruled out, as both conjunctivae were negative, no lines of atrophy being present. Microscopic examination showed true bone formation. An osteoma can be eliminated, the condition not being congenital but having developed following a "stye." We must assume, then, that we are dealing with an old chalazion in which the granulation tissue during a period of years took on the properties of ossification.

Professor Fuchs of Vienna, after reviewing the history and examining the pathologic material, remarked that this was the first case of its type to come to his attention. Search of the literature failed to show a similar case.

19. Sbrana: Ballettino d'Oculisticus **24**: 177 (translation of article).
20. Greco: Arch. di Ottal., 1915, p. 606.
21. Pagenstecher: Arch. f. Ophth. **7**: 1, 1860.
22. Parsons: Pathology of the Eye **2**: 480.
23. Alt: Am. J. Ophth. **33**: 71, 1916.
24. Demaria: Ann. Ophth. **25**: 605, 1916.
25. Vasiliades: Ophth. Rec. **19**: 459, 1910.
26. Bussy: Les proces d'ossification de l'œil pathologique, abstracted by S. Stephenson, Ophthalmoscope **12**: 251 (April) 1914.
27. Anderson: Month. J. M. Sc. **8**: 466, 1848.
28. Vavoolin: Viestn Oft., November, 1912.

CALCULOUS ANURIA *

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By calculous anuria is meant the obstruction to the flow of urine into the bladder. This is usually caused by the impaction of a calculus in the pelvis of the kidney, especially at the ureteropelvic junction or anywhere along the course of the ureter. Impaction of a stone in the vesical neck or in the urethra is therefore not included within this definition, as such an impaction would cause urinary retention, the kidneys continuing to secrete. This is an entirely different condition from anuria, in which the calculous impaction not only obstructs the eccentric outflow of urine but also causes the kidney to stop secreting.

Calculous anuria ensues under varying circumstances. In the monorenal case, that is, when the patient is living with one kidney, the other having been destroyed by disease, removed surgically, or there being only one kidney congenitally, the anuria is due to block anywhere along the course of the single functioning urinary tract. In patients with two kidneys, anuria may be produced by (1) bilateral renal calculous disease, if impaction occurs on both sides, or (2) impaction on one side, with reflex anuria on the noncalculous side.

Acute suppression due to noncalculous disease, such as nephritis, hysteria, kidney tumor, or pressure on the ureters by pelvic carcinoma, is purposely omitted as being outside the scope of this paper. In absolute anuria, the urine is reduced to a few drops in the course of each twenty-four hours.

The anuria may come on suddenly or gradually. It develops gradually if there has been gradual destruction of the kidneys owing to pyenephrosis due to the irritation of the stone, plus infection. This form of anuria is seen as the end-result of the disease, and the patient is usually preuremic, and, finally, uremic. The amount of urine excreted becomes progressively less and less, and then terminates in complete suppression. The acute form of anuria is due to the sudden stoppage of the ureter by calculous impaction. In these cases the anuria comes on suddenly, and is apt to be complete from the start.

* From the Ward Service of the Rochester General Hospital.

PATHOLOGY

The phenomena that are observed in the kidney when its urinary outflow is completely obstructed have been thus tersely described by Watson:[1]

1. There is increased renal pressure.

2. There are congestion and edema of the organ, under the influence of which it becomes enlarged.

3. There occur rapid diminution of the urinary secretion and change in its chemical character, the latter consisting in a marked reduction of its solid constituents. After the obstruction has existed a few hours, the urinary secretion is almost absolutely suppressed, only a few drops being secreted in the course of each twenty-four hours. Owing to the latter fact, hydronephrosis in a marked degree is seldom seen in connection with complete continuous obstruction. The enlargement of the organ is almost wholly due to congestion, and the urinary accumulation plays only a secondary part in its production.

4. When the obstruction has existed for forty-eight hours or so, destructive changes begin in the renal epithelium and in the glomeruli; once begun, they advance until the obstruction is removed. Their extent is therefore proportionate to the length of time during which the obstruction is present. If the obstruction lasts long enough, total destruction of the organ results.

5. If the kidney is infected, the destructive changes take place more rapidly than when it is not infected.

6. The degree of functional ability that remains in an obstructed kidney cannot be determined by the thickness or thinness of the cortex that is found when operation is performed on it, for the essential changes on which the future of the kidney depends are histologic in character. Thus, there may be in one case a very thin layer of the secreting substance which has not been invaded by the destructive changes to such an extent as to prevent its performing useful service for many years after the renal obstruction has been relieved. In another instance in which there is a comparatively large amount of renal parenchyma left, its working capacity may have been virtually destroyed in the changes that have taken place in it of a destructive nature.

Fig. 1 (Case 3). — Solitary congenital kidney, external view: This kidney weighed nearly three times that of a normal kidney, and was full of multiple miliary abscesses.

REPORT OF CASES

CASE 1.—*Stone in the right ureter, 10 cm. from the bladder, causing complete obstruction to the urinary outflow. Reflex anuria, left kidney.*

History.—Mrs. M. M., aged 29, seven months' pregnant, was admitted to the hospital, Oct. 23, 1921, complaining of severe pain in the right kidney region posteriorly, and being unable to pass any urine. Ten months previously she had a single calculus removed from the pelvis of the left kidney through the usual pyelotomy incision. Recovery was uneventful. Otherwise she had always been strong and healthy. She had three children living and well. The present illness began suddenly five days before admission, with intense pain in the right lumbar region posteriorly. During the next few days the pain became more sharply localized over the right kidney and along the course of the right ureter. The day after admission the pain was so severe that morphin, ¼, ⅙ and ⅛ grain (0.0162, 0.0108 and 0.0108 gm.), hypodermically, had no effect. She was nauseated and vomited. She stated that for the last few days the urine had decreased in amounts, and for twenty-four hours preceding admission she had voided once, about 1 ounce (30 c.c.). During the next five days there was no urine voided, and no urine obtained from the bladder by repeated catheterization.

Examination.—The patient presented a picture of typical right reno-ureteral colic, very severe in type. The temperature, pulse and respiration were normal. Blood examination on the third day of anuria revealed: nonprotein nitrogen, 85.7 mg. per hundred cubic centimeters; creatinin, 12 mg.; sugar, 0.1 mg. On the third day of anuria, the bladder presented, cystoscopically, the usual picture seen in advanced pregnancy, the floor and the dome being compressed by the gravid uterus. The bladder was collapsed. There was no residual urine. The mucous membrane showed evidence of a recent cystitis, the walls were engorged, and there were myriads of tiny flakes of mucopus floating in the irrigating solution. There was no stone, ulcer, diverticulum or new growth. Both ureteral orifices were normal in appearance and location. They were both kept under observation, but no efflux of urine was seen. Both ureters were catheterized, the catheter on the left passing easily 28 cm. into the renal pelvis. The catheter on the right met an impassable obstruction 10 cm. from the orifice, at which point roentgen-ray examination showed a definite shadow in the ureter about the size of a finger-nail. This was interpreted as a calculus. It was thought best not to attempt a pyelogram on account of the anuria. Both catheters were left indwelling.

Progress.—During the next twelve hours no urine was secreted through the catheters or around them into the bladder. It was decided to induce labor in the hope that the left kidney, which was suffering from reflex anuria, would be relieved and would begin to secrete urine. Version and extraction were immediately done. The stone was felt in the right ureter, through the vagina. The indwelling ureteral catheters were removed. The next day, which was the fourth day of anuria, the patient was drowsy and vomited a few times. She had not voided. The bladder was catheterized and no urine obtained. The fifth day of anuria, the patient was becoming more drowsy; the blood retention products were steadily increasing. The nonprotein nitrogen had risen from 85 to 133 and the creatinin from 12 to 19.2 mg. in three days. The general condition of the patient was becoming worse. It was decided to decapsulate the right kidney and insert a pyelotomy drainage tube into the pelvis.

Operation and Result.—Under gas-oxygen anesthesia, a lumbar incision was made, exposing the right kidney, which was about two and one-half times larger than normal, smooth, firm and greatly congested. During delivery of the kidney, the lower pole, which was white and ischemic, separated itself from the rest of the kidney, and came away in a single piece about the size of a lemon. There was no undue traction

1. Watson, F. S.: Tr. Massachusetts M. S. **19**: 843, 1904.

exerted in bringing the kidney up into the wound. There was very little bleeding from the plane of separation, showing that the blood supply to the entire lower pole must have been shut off. Microscopic section from this piece of kidney showed marked edema of the kidney tissue throughout without evidence of infection; the pelvic mucosa was normal; there was no pyelonephritis. A few mattress sutures were placed through the kidney substance, just above the plane of separation, for hemostatic purposes. The renal pelvis was opened, releasing a large amount of pent-up urine, and a rubber drainage tube was inserted into the pelvis and sewed into place.

Following the operation, the left kidney, which had been suffering from reflex anuria, immediately began to function, the patient voiding 17 ounces (500 c.c.) in the next twenty-four hours. The pyelotomy tube in the right kidney also functioned satisfactorily, draining large amounts of urine, the dressing becoming saturated. From this time on the urinary output was ample, the patient voiding as much as 50 ounces (1,480 c.c.) a day; but her general condition became poor, with temperature from 98 to 101, and pulse from 110 to 136. The red blood count, which was 3,280,000, fell to 1,470,000, and the hemoglobin from 67 to 29 per cent. during the following eight days. There was no hemorrhage or source of bleeding that could be detected. The patient looked very pale and profoundly toxic. She was given three blood transfusions during the next month, 800, 300 and 300 c.c. The red blood count became 3,830,000, and hemoglobin 70, before she left the hospital.

Two months after operation, catheters were inserted into both ureters, going to the level of the kidneys without meeting obstruction. Both kidneys were functioning, ample urine coming through the catheters. A plain roentgenogram and a second one with the opaque catheters in situ were negative for calculus. The stone probably passed silently, without occasioning symptoms, sometime during the patient's three months' stay in the hospital. This has happened in many cases reported in the literature.

Fig. 2 (Case 3).—Anuria due to calculous obstruction in a congenital solitary kidney: Arrows point to calculi; the median calculus is at the ureteropelvic junction.

Blood chemistry findings in this case were of great interest and were very helpful in getting a survey of the case. The increase in the retention products can be seen up to the time of operation; and, after operation, their gradual reduction to normal. They are tabulated in milligrams per hundred cubic centimeters of blood.

Retention Products in Case 1

	10 Months Previous to Anuria 12/28/20	Third Day of Anuria 10/26/21	Fifth Day of Anuria 10/28/21	Second Day After Operation 10/30/21	2 Months After Operation 1/5/22
Nonprotein nitrogen	30	85.7	133.3	128.9	29.2
Creatinin	..	12	19.2	6.0	1.9

At the time of the first operation in 1920 for a single calculus in the left kidney pelvis, the blood chemistry findings were practically normal. On the fifth day of anuria, the day the pyelotomy was done, the retention products had reached their highest point, the creatinin being 19 mg. Forty-eight hours after the urinary flow had been established by operation, this dropped to 6, and from then on gradually to normal. The pyelotomy tube was removed two weeks after operation, and the wound healed spontaneously. The phenolsulphonephthalein output just previous to discharge was, first hour, 15 per cent.; second hour, 21 per cent. When seen, Aug. 1, 1923, twenty-two months after operation, the patient reported herself as feeling fine and in excellent condition.

CASE 2.—*Recurrent oliguria and anuria due to bilateral calculous disease.*

History.—Mrs. C. B., aged 41, was admitted to the hospital, Aug. 30, 1921, complaining of severe pain and swelling in the right lower abdominal quadrant. The history was unimportant except for chronic osteomyelitis of the left tibia and of the right scapula for the last three years. The osteomyelitis had been accompanied by abscess formation, recurrent in nature, so that the patient has been more or less confined to bed for the last year. The present illness began about a year before admittance, with pain in both iliocostal areas, nonradiating and tolerable. The pain continued intermittently up to the time of admittance. She had never had any attacks of urinary frequency, nocturia, hematuria or dysuria, and had never passed any sand, gravel or stones. She stated that she had had considerable pus in the urine for the last year. Cystoscopy had been performed about a year before in another hospital, and the patient was told that the left kidney was "dead" and that no urine was coming from it.

The immediate present illness had began two weeks before admission with a dull, tolerable pain situated in the right lower quadrant. The pain became progressively worse until it was agonizing in character, and at the same time the right lower portion of the abdomen began to swell rapidly and became very tender. It became so large that the patient palpated the mass herself and made this fact part of her complaint. Since onset there had been no desire to void, and when she did urinate (two or three times in twenty-four hours) she said that the amount was very small, about an ounce at a time.

Examination.—The patient, who was thin and cachetic, lay quietly in bed. There was an old osteomyelitis of the left tibia and right scapula. The abdomen was rigid and there was a large, visible, palpable mass in the right lower quadrant, extending laterally into the right lumbar region, exquisitely tender to deep palpation. The liver, spleen and left kidney were not palpable. The white blood corpuscles numbered 18,600. The urine contained albumin and much pus. The pulse was 120; temperature, 102.2; respirations, 22.

Operation and Result.—On the day of admission, through an Albarran incision, a right nephrotomy was performed. The kidney was extremely dilated so as to form a large, thick-walled sac. On breaking through with a finger there exuded a large amount of purulent urine, followed by blood. The hemorrhage was controlled and the wound packed with gauze. The patient was on the table twelve minutes. Culture of the pus showed staphylococcus. The next day the pulse was 108; temperature, 98; respirations, 16. There was a large amount of urinary drainage through the nephrotomy wound. The patient had not had any desire to void. Fifty-four hours after operation, she urinated for the first time, 2 ounces (60 c.c.), and from then on voided from 2 to 4 ounces (60 to 120 c.c.)

during each twenty-four hour period. The patient was very weak and asthenic, but gradually improved. Drainage continued freely from the right nephrotomy wound. On the twelfth day the urine still contained albumin and a large amount of pus. At this time the red blood count was 3,950,000; white blood count, 31,750. Blood examination revealed: nonprotein nitrogen, 50 mg.; creatinin, 1.5 mg.; sugar, 0.11 per cent.; Wassermann reaction, negative. Roentgen-ray examination revealed three calculi in the pelvis of the left kidney, and one in the lower third of the right ureter. The patient left the hospital on the sixteenth day, draining less through the operative wound and passing larger quantities through the bladder.

Second Admission.—She was readmitted two months later with the same complaint as at the first admittance; viz., painful swelling in the right lower quadrant. The right nephrotomy incision had healed. Since leaving the hospital she had not felt well, having occasional sharp pains in the right side, radiating posteriorly to the lumbar region and anteriorly down the right thigh. She went through the same urinary history that she had on the previous admission; there was no desire to void, and she urinated only two or three times a day, about an ounce at a time. The patient was very weak and emaciated, the tongue heavily coated and furry. The breath sounds were diminished over the entire chest, and there were fine râles posteriorly over both apexes. The heart sounds were regular, but weak and distant. The abdomen presented a tender, bulging enlargement in the right lower quadrant. A diagnosis was made of right hydronephrosis due to blocking of the right ureter by a stone, and of partial anuria. Urine culture yielded *B. coli-communis.* The red blood count was 2,530,000; white, 35,900. At operation, through a right lumbar incision, the right kidney was found greatly enlarged, only a thick shell of kidney tissue remaining. The kidney was explored with a trocar and purulent urine aspirated. The opening into the kidney was enlarged by blunt dissection, and a large amount of urine, blood and pus evacuated. The cavity was explored by a finger and no stone found. Owing to the poor condition of the patient, a large drainage tube was inserted into the kidney with gauze packing around it, and the wound closed. The patient was on the table ten minutes. She did not rally from the operation, and her condition remained serious. Respirations were very shallow and irregular. The pulse was barely perceptible. She died that evening.

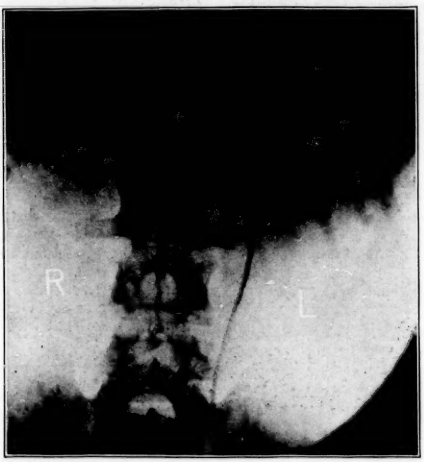

Fig. 3.—Crossed condition due to renorenal reflex: All sympoms were on the right, which proved normal: hydronephrosis on opposite side.

Necropsy.—This was limited to the operative incision. Rigor was marked. The right kidney was converted into a large pyohydronephrotic sac with greatly reduced fibrosed secretory parenchyma. The calices were distended and lobular. The ureter was distended for 2 inches (5 cm.) below the kidney, where it was plugged by a mass of gravel-like stones, mostly pin-head to 0.5 mm. in size. The entire kidney was low in position, the lower pole being below the pelvic brim. There was marked perinephritis. The left kidney was removed through the right lumbar incision with great difficulty, owing to firm, fibrous adhesions to the vertebrae, and a fibrous healed sinus tract leading to a scar in the skin. The kidney was much diminished in size, with dilated pelvis and calices. The gravel that was felt in the pelvis was dislocated during removal. The secretory tissue was almost gone, about 2 cm. of markedly fibrosed parenchyma alone being left, the rest of the tissue being dense and fibrous.

Summary.—This case was one of anuria due to a functionless left kidney, and an obstructed right kidney; pyonephrosis; death from kidney insufficiency.

The association of renal calculous disease in a patient suffering from chronic osteomyelitis is especially interesting. Paul [2] has reported a number of these cases.

CASE 3.—*Solitary congenital kidney. Anuria due to calculous obstruction in the ureter of this kidney.*

History.—L. F., a man, aged 50, was admitted to the hospital, Sept. 19, 1921, complaining that he had not voided urine for more than three days. He had always been exceptionally well and strong, had never had any urinary difficulty of any kind, and had never passed any gravel, stones, pus or blood. He never had any attack of partial or complete anuria. The present illness began suddenly three days before admission, when the patient noticed that he had not voided that day, and there had been no desire to void. After waiting about twelve hours he attempted to void, but no urine came. The second and third day he repeatedly tried, but no urine came. There was no bladder distention and no discomfort. He had been up and about pursuing his usual work, that of a carpenter. On the fourth day he became alarmed at the fact that he had not passed any urine in such a long time, and walked into the hospital for treatment.

Examination.—The patient was comfortable. There was no pain or tenderness anywhere. The patient's mentality was clear. The tongue was furred, and the breath foul. The abdomen was tympanitic throughout. No masses or viscera were palpable, and there was no evidence of a distended bladder. The systolic blood pressure was 240; diastolic, 115. The prostate was slightly enlarged, symmetrical, smooth and of adenomatous consistency; the median sulcus was present, but shallow. A soft rubber catheter was inserted into the bladder, which was found empty, there being no urinary return. The bladder was irrigated. Roentgen-ray examination revealed a number of small calculi in the right kidney. The first cystoscopy, after anuria had existed three and one-half days, detected no obstruction and no residual urine. The bladder was empty. The mucous membrane was engorged throughout. There was no stone, ulcer, diverticulum or new growth. The median prostatic lobe was elevated, and there was no intrusion of the laterals. The right ureteral orifice was normally situated, somewhat injected and edematous. The left orifice was not present in its normal location, and careful search throughout the bladder failed to reveal it. A catheter was inserted into the right ureter, meeting obstruction at 6 cm. which was gradually overcome, and passed to the level of the kidney. Indigocarmin, 5 c.c. of 4 per cent. solution, and phenolsulphonephthalein, 1 c.c., were injected intravenously. There was no return of either of the dyes during one hour and fifteen minutes' observation.

Course.—The ureteral catheter was left indwelling. Two hours later the kidney began to secrete urine rapidly through

2. Paul, H. E.: Canadian M. A. J. **12**: 638 (Sept.) 1922.

the catheter; 7 ounces (207 c.c.) was collected in the next four hours, and 70 ounces (2,070 c.c.) in the next twenty-four hours. The catheter functioned satisfactorily for six days. The patient became incontinent, urine leaking from the urethra around the indwelling catheter, but there was no voluntary voiding. At this stage the catheter was removed.

Coincident with the urinary drainage, the blood retention products fell. The nonprotein nitrogen, which had been 143 mg. per hundred cubic centimeters of blood at the onset, dropped to 65.2 mg., and the creatinin from 17 to 5.4 mg. The phenolsulphonephthalein test, repeated at intervals, did not increase beyond a trace for two hours. With the large output of urine and the reduction in the blood chemistry findings, we felt that our patient was improving, and did not consider pyelotomy or ureterotomy at this time.

Twelve hours after the catheter was removed, the patient had a chill, and the temperature rose from a preceding level of 99 to 101 F. This was thought to be due to renal infection, either a pyelonephritis or multiple abscess formation. He had not voided, and a catheter found the bladder empty. This was the beginning of the second attack of anuria.

Twenty-nine hours after the onset of the second attack of anuria, cystoscopy was again performed. Sixteen ounces (473 c.c.) of grossly purulent urine was found in the bladder. A ureteral catheter was passed on the right for a distance of 6 cm., where it met obstruction due to a small stone in the ureter and could not be introduced farther. Roentgen-ray

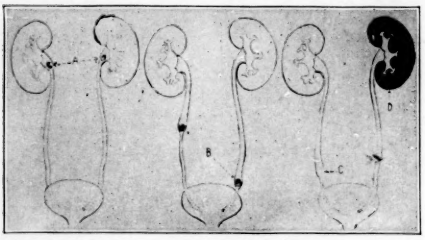

Fig. 4.—Diagrammatic representation of three forms of calculous obstruction causing anuria: *A*, calculi obstructing both renal pelves; *B*, calculi obstructing both ureters at different levels; *C*, calculus obstructing one ureter, the opposite kidney (D) being destroyed by disease or having been removed (after Eisendrath).

examination showed a calculus against the tip of the catheter. It was impossible to dislocate this stone by manipulation or by forcing 3 c.c. of sodium bromid solution against it. The catheter was made indwelling. Repeated search for the left ureteral orifice again failed to reveal it, and search in the posterior urethra while withdrawing the cystoscope also failed to show an ectopic opening. The roentgen-ray department became interested in the possibility that we were dealing with a congenital absence of the left kidney, and took a total of seventeen roentgenograms, none of which showed an outline or a shadow representing the left kidney. This, coupled with the fact that no left ureteral orifice could be located by cystoscopy or the indigocarmin method, led us to believe that the left kidney was congenitally absent, or fused with the right, having a single ureter as a common stem.

No urine was secreted through the indwelling ureteral catheter. The patient died in uremic coma the next day, eleven days after the initial anuria.

Necropsy.—We were limited to lumbar incision only. There was no kidney on the left, either in the normal position or in its neighborhood. The right kidney was removed. The pelvis was distended with a large amount of purulent urine, containing several tiny calculi and some sand. The kidney was much enlarged, weighed 320 gm. (from 110 to 180 gm. is normal), and it measured 4 by 8 by 15 cm. It was soft, friable, four-smelling and dotted with innumerable tiny abscesses throughout, with greatly dilated kidney pelvis and calices, the walls of which were hemorrhagic and necrotic. An immediate smear showed *B. coli* and pus.

RENORENAL REFLEX

By the term renorenal reflex is meant the sudden stoppage of urinary secretion in the supposedly normal kidney. Morris,[3] Legueu,[4] Albertin,[5] Merklen,[6] and Rovsing, Albarran and Casper all hold that this phenomenon cannot take place in a normal kidney, but that the kidney must have been previously diseased: in other words, that reflex inhibition is not capable of stopping the function of the other kidney when the latter is normal or but moderately diseased.

Watson,[1] Cabot,[7] Frank,[8] Guyon, Israel, Marion and Baetzner all feel that reflex anuria can occur in the remaining normal kidney. There are a number of authentic cases in favor of this possibility. Hind[9] says, "It is quite possible that the impaction of a stone in the ureter on one side may cause reflex inhibition of the urinary secretion in the other side."

Elliott[10] reports an interesting case in this regard. It occurred in a patient with hypernephroma of one kidney that was secreting practically no urine. Sharp bleeding occurred, the ureter became obstructed and anuria followed. Necropsy showed a sound kidney on the other side. Watson[1] says that he has seen two or three cases postmortem in which the unobstructed kidney was found to be normal or very nearly so. He also says, "Further evidence in support of the occurrence of reflex suppression is supplied clinically; this consists of cases in which the opposite kidney has been found to all appearances normal at operation, the operation having been done because of the persistence of the anuria in the previously operated obstructed kidney. Also in having drawn normal urine from such a kidney by ureteral catheter. Reflex anuria is rare, but does occur."

We feel that in our Case 1 the approximately normal kidney became anuric because of the renorenal reflex. There had been no urine secreted into the bladder for a period of five days. The operation consisted of inserting a drainage tube into the pelvis of the obstructed right kidney (stone in the right ureter). We have no reason to believe that the right kidney began to force urine through its ureter past the obstructing calculus. However, the patient voided 17 ounces (500 c.c.) voluntarily from the bladder during the twenty-four hour period following operation. We feel that this urine necessarily must have come from the unobstructed left kidney, whose function had been suspended temporarily for five days, the period of total anuria, by reflex inhibition.

Utterström[11] reported a case similar to this one. In his case the anuria was evidently a reflex phenomenon from the presence of a stone as large as a cherry in the left kidney. After decapsulation and nephrotomy of this kidney, the other kidney resumed functioning.

Two cases that came under my observation would argue in favor of the existence of renorenal phenomena:

A man with left-sided hydronephrosis entered the hospital complaining of right reno-ureteral colic, pain and disability in the region of the right kidney, which incapacitated

3. Morris, quoted by Frank (Footnote 8).
4. Legueu: Tr. Assn. franç. de urol., 1907, p. 561.
5. Albertin, quoted by Kuster: Krankheiten der Nieren.
6. Quoted by Morris, H.: Renal Surgery, Philadelphia, P. Blakiston's Son & Co., 1898.
7. Cabot, Hugh: Anuria, Its Etiological and Surgical Phases, Am. J. Urol. **11**: 89, 1915.
8. Frank, L.: Anuria Due to Unilateral Calculus Obstruction, Surg., Gynec. & Obst. **20**: 526, 1915.
9. Hind, W.: Brit. M. J. **1**: 960, 1894.
10. Elliott, quoted by Cabot (Footnote 7).
11. Utterström, E.: Operative Treatment of Anuria, Upsala Läkaref. Förhandl., abstr. J. A. M. A. **71**: 784 (Aug. 31) 1918.

him to the degree that he was unable to carry on his work of dairyman. Cystoscopic and roentgen-ray investigation revealed the side of which he was complaining to be normal, and the pyelogram showed, on the opposite side, hydronephrosis due to stricture at the ureteropelvic junction. Is not this crossed condition due to a renorenal reflex?

J. M., a man, aged 55, was subjected to cystoscopy because of a clinical picture of stone in the left ureter. The bladder was iptolerant on account of a large median bar, and for this reason the opaque catheters were left in the ureters only long enough to take a roentgenogram, perhaps five minutes in all. We did not wait to collect ureteral urines or make a phenolsulphonephthalein test on account of the intolerance to instrumentation. There ensued a period of fifty-six hours in which the patient went into complete anuria, the catheter finding the bladder empty repeatedly. The bowels did not move during this period, and the abdomen was greatly distended. At the fifty-sixth hour the catheter removed 1 ounce (30 c.c.) of grossly bloody urine. From this time on the urine became less bloody and increased in quantity.

It seems that, if such a slight disturbance as a five-minute ureteral catheterization can so upset the normal action of the kidneys that they would stop secreting reflexly for more than two days, certainly with a gross pathologic lesion of one kidney such as would occur if it were suddenly blocked off, the function of the second kidney could be disturbed sufficiently to stop its secreting.

Of all the theories sumbitted as to the causation of a renorenal reflex, the circulatory-congestive theory advanced by Frank [8] seems the most logical:

> In ligation experiments the urinary output of the unobstructed kidney is always at first moderately diminished, owing to altered circulation. Based on these findings and because of the tremendous arterial congestion in the kidney, we have been led to believe that herein lies the cause of anuria in patients with unilateral calculous obstruction. This is doubtless the congestive reflex referred to by Israel in his thesis in 1888. One of the kidneys being put out of commission, compensatory vascular activity in the other fills its arterial system with a volume of blood that cannot be cared for by its venous system. This permits further overdistention from the arterial side; the leakage from the arterioles adds to the direct pressure on the veins, further lessening the escape of blood; and mechanically, as a result of these circulatory disturbances, the kidney is overwhelmed with arterial blood, thus interfering just as effectively with urinary excretion as if the renal vein were ligated.
>
> Complete interruption of venous escape produces anuria, just as does permanent obstruction of urinary outflow from the kidney. It requires in the kidney pelvis a pressure of only 50 mm. of mercury to bring about equalization in the arterial flow and a practical cessation of secretion. We would therefore offer this circulatory disturbance as the explanation of anuria in the presence of one obstructed, and a second good and normal kidney.

SYMPTOMS

The chief symptom is the anuria. This is rarely complete and total, as the patient may void from a few drops to a few teaspoonfuls of bloody urine, at long intervals. Most patients suffer from pain on the affected side, varying in intensity from a moderate ache to a typical severe, renal colic. In many cases this pain disappears after a day or two, when the intrapelvic renal tension has become equal to the pressure in the renal blood vessels. The period of tolerance, that is, the length of time which passes before the patient goes into uremia, varies greatly. In some cases this happens early, on the second or third day, but in most cases the mentality remains clear for seven, eight or ten days.

Scholl and Foulds [12] have reported a case in which the patient was mentally clear for fourteen days, although she excreted only 25 c.c. of urine in that time. Frank [8] reports a case of anuria following nephrectomy for tuberculosis in which the patient passed only a few ounces of urine in twenty-six days. In an analysis of sixty-two cases by Watson,[1] the period of tolerance in the majority was between four and seven days. In fourteen cases it was between ten and sixteen days. If the kidney that is obstructed is already hydronephrotic, the period of tolerance and the life of the patient are prolonged.

Before uremia sets in, the patient may be perfectly comfortable and may even be up and about pursuing his usual occupation without realizing his imminent danger, as uremia may set in at any time. In Case 3 the patient was up and about in total anuria for three days before he entered the hospital for attention. After the second or third day gastro-intestinal symptoms set in, such as nausea, vomiting, eructations, constipation and flatulence. Later, in the preuremic stage, there are symptoms attributable to the nervous system, such as mental depression, a sense of lassitude and disturbed sleep, or actual sleeplessness. The disease occurs mostly in adults in middle life, although Rayer [6] has recorded instances of children, and even of infants at the breast, dying of convulsions from calculous suppression.

Bilateral calculi occur in about 30 per cent. of the total number of renal calculus cases. This estimate is based on the report of 231 cases of renal calculus made by Albarran, Legueu, Morris, Kummel and Kraft.

The mortality in patients treated palliatively is very great. Up to 1883 the treatment was entirely medical, and death was the common result. The mortality in cases treated surgically is approximately one half that of those treated medically. In fifty-six cases reviewed by Legueu in which operation was not performed, there were forty deaths (71.5 per cent.). In forty-nine cases reviewed by Morris in which operation was performed, there were twenty-four deaths (49 per cent.). In other words, nearly twice as many patients die if left alone.

Legueu, analyzing thirty cases in which the condition was proved by necropsy, found that the other kidney was congenitally absent in three cases, destroyed by calculus in twenty cases, and the ureter stopped in six. Morris, by similar analysis of twenty-eight cases, found the other kidney congenitally absent in six, destroyed by calculus in eleven, atrophied in eight, destroyed by a hydatid cyst in one, and enlarged in two.

TREATMENT

The paramount indication is to supply an avenue for the escape of the urine. One should not waste too much time trying to cure the patient by passing a ureteral catheter beyond the point of obstruction. Eisendrath [13] warns against too prolonged an effort to relieve the anuria by ureteral catheterization. He states that one is perfectly justified when anuria has existed for only twenty-four or forty-eight hours in attempting to pass the obstruction, or even to deliver the calculus by nonoperative methods for another forty-eight hours; but even urologists, such as André, who have been successful with ureteral catheterization, urge operation on the fifth day at the latest, of the period of tolerance.

12. Scholl, A. J., and Foulds, G. S.: Prolonged Anuria, J. A. M. A. **76**: 368 (Feb. 6) 1921.
13. Eisendrath, D. N.: Calculous Anuria, J. A. M. A. **79**: 2057 (Dec. 16) 1922.

In Case 3, the cystoscopic methods proved very deceptive. We were able to relieve the anuria temporarily by leaving the ureteral catheter indwelling above the level of the stone. This delayed the time of operation until it was too late, and the patient succumbed without operation. In this case the patient might have had a chance if we had done a pyelostomy in spite of the fact that we were able to relieve the obstruction by ureteral catheter. There are many case reports in the literature, however, in which the ureteral catheter method proved successful. Thévenot [14] reported two cases of his own and compiled reports of thirty-eight others, in which catheterization had been tried. There were thirty-two recoveries. If an absolute diagnosis cannot be made as to which kidney is suffering from obstruction, one is justified in cutting down on both. Operation is still indicated, even if the anuria has existed for a long time.

There have been some reports of late operations being successful, Demon [15] having operated successfully on the eleventh day, and Chevalier [16] on the fourteenth day.

In spite of these cases, operation should not be delayed, because, just as in bowel obstruction, each day that the obstruction exists increases the risk tremendously. Most authors are agreed that opening the kidney pelvis and sewing in a drainage tube is the operation of choice. This we did in our one case in which the patient recovered. Nephrotomy is too dangerous from the standpoint of hemorrhage, although it was practiced in the days before modern surgery. Decapsulation by itself is useless, as it does not relieve the obstruction.

If the stone is readily found and easily removable, it is well to do so; but not too much time should be wasted in a search for the calculus at the first operation, as this can be accomplished better at a second operation, especially if the stone is in the ureter.

Following the establishment of drainage, the ureteral stone may pass spontaneously into the bladder. This happened in Case 1 and also in a case reported by Barringer [17] in which operation was not performed. If the patient is not secreting sufficient urine, surgical intervention should not be delayed, no matter what kind of treatment has gone before.

35 Chestnut Street.

14. Thévenot: Progrès. méd. **35**: 129 (March 20) 1920.
15. Demon: Ann. d. mal. d. org. gén.-urin., 1894.
16. Chevalier, quoted by Dolin: L'anuria calculeuse, 1896.
17. Barringer, E.: Bilateral Ureteral Calculi; Anuria; Recovery Without Operation, M. Rec. **91**: 702, 1917.

Local Demand Determines Enactment of Health Legislation.—Enactment of any legislation is almost wholly dependent on the degree of local demand which is expressed. This demand is early reflected in the attitude of the legislator and somewhat later in that of the governor. The character of the appeal to the legislator is entirely different from that made to the public. The legislator is quite ready to accept proposed legislation if he believes its enactment will contribute to his success at the polls, either for reelection or for some position higher up on the political ladder. He is primarily responsive to the sources of information which he has in his own district, and is only remotely affected by what transpires in other districts in the state. He knows misinterpretation of the wishes of his constituents is fatal. The successful promotion of health legislation, so far as the legislator is concerned, consists in discovering the local sources of information on which he places his trust and dependence.—R. G. Paterson: *Hosp. Soc. Serv.* **9**:21 (Jan.) 1924.

OBSERVATIONS ON CAPILLARY MICROSCOPY IN PREGNANCY *

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Clinical studies of capillary circulation received a marked impetus when Lombard,[1] in 1912, elaborated his method of direct visual examination of the capillaries of the skin. The capillary system is probably the most important unit of the entire circulatory apparatus, and yet, to quote Krogh,[2] "it is a little strange that . . . the capillaries have been neglected in an extraordinary degree." Since microscopy of the capillaries has permitted a study of their morphology, distribution and behavior in health and disease, a new field has been opened to physiologists as well as to clinicians.

The function of the circulatory system is twofold; viz., to carry nourishment to the tissues and to carry waste products away from the tissues. The capillaries are all-important since it is through their walls that this exchange of food and excretion products takes place. It must be apparent, therefore, that many pathologic conditions will be better understood if a diseased state of the capillaries is the prime factor in the etiology of such conditions, or if it can be demonstrated that definite and regular changes in shape and behavior are concomitant with such pathologic conditions.

Spalteholtz [3] has carefully studied the circulation of the skin. The terminal cutaneous arterioles form the subpapillary arterial plexus just below the papillae of the skin. From this meshwork arise smaller arterioles which supply the capillaries, there being one capillary loop for each papilla. A normal capillary loop consists of an arterial arm or segment, which is usually narrow, and a venous arm which is somewhat wider and longer. The connecting portion, which is venous, is the thickest portion. Brown and Giffin [4] have measured the capillary loops by means of an eyepiece micrometer, and give the following figures: The arterial segment is 0.15 mm. in length and 0.01 mm. in diameter. The connecting portion is from 0.01 to 0.02 mm. in diameter and 0.034 mm. in length. The venous arm is longer, as a rule, being 0.18 mm. in length, with a diameter of 0.02 mm. The entire length of the loop is from 0.2 to 0.4 mm.

Danzer and Hooker [5] have carefully studied the physiology of the human capillaries with special reference to capillary pressure. They found the average pressure in normal individuals to be 22 mm. of mercury in the sitting posture. The capillary pressure is raised by standing, by local application of heat, by venous compression and by increased intrathoracic pressure. They do not believe in the popular conception that the capillaries control the redness of the skin, but attribute this to the state of the subpapillary venous plexus.

The method of Lombard, as further elaborated by Weiss [6] and others, utilizes an ordinary microscope and either a Nernst lamp or electric light rays passed

* From the Maternity Service of the Michael Reese Hospital.
1. Lombard, W. P.: Am. J. Physiol. **29**: 335, 1912.
2. Krogh, A.: The Anatomy and Physiology of Capillaries, New Haven, Yale University Press, 1922.
3. Spalteholtz: Arch. f. Anat. **1**: 1893.
4. Brown, G. E., and Giffin, H. Z.: Am. J. M. Sc. **166**: 4, 1923.
5. Danzer, C. S., and Hooker, D. R.: Am. J. Physiol. **52**: 136 (May) 1920.
6. Weiss, E.: Deutsch. Arch. f. klin. Med. **119**: 1, 1916.

through a series of lenses to concentrate the rays. We have used the apparatus described by Mayer,[7] which consists of a very small electric lamp with a strong convex lens ground in the bulb.[8] This gives a direct ray of approximately 150 candle power. This lamp is held in position by a small metal stand and is placed so that the ray of light and the objective of the microscope are focused on the same area. Objective 1 and Ocular 4, were used to study the morphology of the capillaries. For observing changes in the capillary flow, higher magnifications were used. The area chosen for examination was the center of the nail fold of the index finger. Here the capillaries run parallel to the skin and are therefore readily studied in groups, being visible for a greater distance than in other portions of the skin. The skin is scrubbed with green soap and water, thoroughly dried, and then covered with cedar oil such as is used for oil immersion work. This cuts out all reflected rays and also makes the capillaries visible by making the epithelium invisible.[1] The finger is immobilized by strapping it to a wooden tongue depressor with adhesive tape, which is lightly applied over the knuckles in order not to constrict the circulation. The finger is then placed on the stage of the microscope, and the arm supported in such a manner that it is comfortable and completely at ease.

The capillaries stand out plainly, being dark red against a pink background. From ten to thirty capillary loops are usually seen in one field. They are most commonly of the hairpin type, with only an occasional irregularity as to size or shape. The thinner arterial segment can be seen arising from the depths, and the connecting segment, which is venous, shows definite thickening. The venous segment is of greater diameter than the arterial one, and occasionally is slightly tortuous. Some variations of length, breadth or caliber can always be found even in absolutely normal persons. Careful observation of the capillary flow will reveal variations in the rate of flow, with occasional periods of retardation and intermittence. Very rarely, a period of stasis may be observed. As a whole, however, the picture of normal capillaries is rather constant, with practically all loops of one size and outline and with a steady capillary flow (Fig. 1).

Weiss,[6] Boas,[9] Brown,[10] Magnus [11] and others have reported marked changes in the capillaries in circulatory disturbances, and our findings have been practically the same. In cardiac decompensation, the loops are greatly dilated and thickened, with marked tortuosity and lengthening. The flow is greatly retarded, and stasis and beading are common; occasionally a reverse flow from the venous arm into the arterial arm could be seen. In a case of acute endocarditis in a boy, aged 15, we found only slight lengthening, but marked tortuosity and irregularity in outline (Fig. 3). A case of mitral disease with auricular fibrillation showed capillary loops that were enormously lengthened, with dilatation marked in the venous arms (Fig. 2). In diabetic patients we found the capillaries short, very thick and with a very sluggish capillary flow. In chronic nephritis, the venous arm is usually dilated and tortuous. Retardation and beading are very common, and often a stasis or reversal of flow can be seen. Figures of eight, clubbed ends and tennis racket forms are also often seen.

Our particular interest in capillary microscopy lay, however, in a study of the capillaries during pregnancy, especially in the toxemias of pregnancy, eclampsia, and renal disease complicating frequency. One of us [12] previously described temporary changes, such as bulging at the convexity, hairpin shapes, and elongation of the loops with occasional retardation and beading, in the toxemias of pregnancy. In a series of normal gravidae

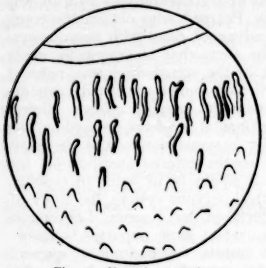

Fig. 1.—Normal capillaries.

Fig. 2.—Capillaries in a case of acute endocarditis.

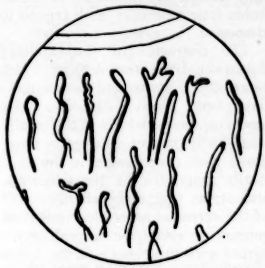

Fig. 3.—Capillaries in a case of mitral disease.

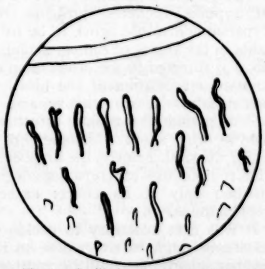

Fig. 4.—Capillaries in a case of toxemia of pregnancy.

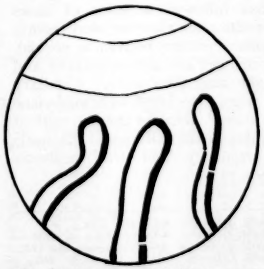

Fig. 5.—Appearance of capillaries under high power, showing segmentation.

7. Mayer, K. M.: Observations on the Capillaries of the Normal Infant, Am. J. Dis. Child. **22**: 380 (Oct.) 1921.
8. This lens was furnished by the American Surgical Specialty Company.

9. Boas, E. P.: M. Clin. N. Am. **5**: 1007 (Jan.) 1922.
10. Brown, G. E.: Ann. Clin. Med. **1**: 69 (Sept.) 1922.
11. Magnus, G.: München med. Wchnschr. **68**: 908 (July 22) 1921.
12. Baer, Joseph L.: A Contribution to the Problem of Nephritis and Nephrosis in Pregnancy, J. A. M. A. **79**: 622 (Aug. 22) 1922.

and puerperae, we have found the capillary loops to be approximately normal both as to morphology and as to behavior of the capillary flow. This agrees with Nevermann,[13] who reports the same findings. However, cases showing albumin and casts in the urine show an elongation of the capillary loops with a slight increase in size in the venous segment (Fig. 4). There is also a slight increase in tortuosity, but this is never marked except in cases of true nephritis complicating pregnancy. Both Hinselmann [14] and Nevermann found only temporary changes in cases of toxemia. This holds true especially with regard to changes in size and shape.

The character of the capillary flow shows more deviation from the normal. Beading, segmentation, retardation, stasis and occasionally a reversal of flow have been noted (Fig. 5). Hinselmann lays great stress on these changes in the capillary flow. He believes that the slight and apparently temporary changes, combined with the changes in the capillary flow, are practically diagnostic of the toxemias of pregnancy. He also states that these changes are due to angiospasms of the terminal arterioles, and that here lies the pathogenesis of eclamptic convulsions. Linzenmeier [15] disagrees with this theory on the following grounds: Each capillary acts independently, for the capillary loops in any given area never react the same in respect to capillary flow; if angiospasm were the cause, then all the capillary loops that arise from one arteriole would react in a similar manner; this, Linzenmeier has never found.

We have never been able to show that the loops react simultaneously. In support of Hinselmann's theory, it must be stated however, that Nevermann [16] reports one field in which he found four capillaries that reacted synchronously.

These changes found in the capillary loops in the toxemias of pregnancy are most marked during the height of the disease, and improve with general improvement. Hinselmann has followed a series of cases through for several months after recovery, and reports that gradually the capillary picture returns to normal. In true nephritis, the changes are always marked and permanent, never slight and temporary. Capillary microscopy, especially when associated with methylene blue and the "freshet" tests,[12] gives us another method that should prove of value in the differential diagnosis of the kidney of pregnancy and true nephritis complicating pregnancy.

29 East Madison Street.

13. Nevermann, H.: Zentralbl. f. Gynäk. **44**: 1425, 1920.
14. Hinselmann, H.: Zentralbl. f. Gynäk. **44**: 987 (Sept. 4) 1920.
15. Linzenmeier, G.: Zentralbl. f. Gynäk. **46**: 1010 (June 24) 1922.
16. Nevermann, H.: Zentralbl. f. Gynäk. **46**: 617 (April 22) 1922.

Mortality from Cancer in 1922 in U. S. Registration Area.—The death rate from cancer in the registration area in 1922 was 86.8 per 100,000 population, as against 86 in 1921. Only five states show lower rates for 1922 than for 1921. The highest adjusted cancer rate for 1922 is 106.9 per hundred thousand population for the state of Rhode Island and the lowest is 53.1 for Tennessee. For a few states adjusted rates have been calculated separately for the white and colored populations. In this group of states the highest adjusted rate for the white population is 92.5 per hundred thousand for Maryland and the highest for the colored population is 81.7 also for Maryland. The lowest adjusted rate for white population is 52.8 for Tennessee and the lowest rate for the colored population is 40.8 for Florida.—*Pub. Health Rep.* **38**: 3032 (Dec. 21) 1923.

TRYPARSAMIDE IN THE TREATMENT OF SYPHILIS *

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At the time our work was begun, the use of tryparsamide in the treatment of trypanosomiasis in man was under investigation by Pearce,[6] who obtained encouraging results even in advanced cases with nervous system involvement. The facts that in practically every patient the cell count in the spinal fluid was reduced toward normal, and that undernourished patients usually gained markedly in weight, offered clinical parallels to the experimental evidence regarding the affinity of the drug for nervous tissues and its nutritional effect. These results offered justification for belief that tryparsamide might be of value in syphilis, particularly of the central nervous system, the study of which had been undertaken by Lorenz, Loevenhart and their associates, who soon reported [7] favorable accounts of their results. A preliminary paper [8] from their clinic has recently appeared embodying their experience with tryparsamide, particularly in general paralysis. Further reference to this paper will be made, in a discussion of our own material.

Our part in the investigation was primarily an attempt to delimit the possible fields of activity of tryparsamide in syphilis therapy, and to that end we have treated a considerable number of patients with syphilis, including patients with neurosyphilis. In this communication, our results will be epitomized with the citation of sample case records to illustrate characteristic points. A complete report will be published later.

TRYPARSAMIDE IN EARLY SYPHILIS

The results obtained by Brown and Pearce in rabbit syphilis rendered probable the prediction that tryparsamide would prove to be of comparatively little value in the stages of human syphilis in which the chief effort is directed to the destruction of organisms to the point of sterilization of the host. This, of course, is particularly true of primary and secondary syphilis. At this period of syphilitic infection, it is usually possible to bring about a biologic cure with drugs already at our disposal, namely, the arsphenamins and mercury. The routine use of tryparsamide would therefore be justified only if its effects exceeded those of the arsphenamins.

It was first necessary to decide to what extent the maximum single effective dose in rabbit syphilis (400 mg. per kilogram) could be approached in man. Our own early experience with neurosyphilis, and Pearce's work with trypanosomiasis, showed that on a dosage level of from 50 to 80 mg. per kilogram (repeated doses of from 3 to 5 gm.), transient symptoms of amblyopia tended to appear. Considerations of safety

* From the Syphilis Department of the Medical Clinic, the Johns Hopkins Hospital.
* This research has been aided by a grant from the Rockefeller Institute for Medical Research.
* Owing to lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the author's reprints, a copy of which may be obtained on request.

6. Pearce, Louise: Studies on the Treatment of Human Trypanosomiasis with Tryparsamide, J. Exper. Med. (supplement) **34**: 1 (Dec.) 1921.
7. Personal communication to the autuors.
8. Lorenz, W. F.; Loevenhart, A. S.; Bleckwenn, W. J., and Hodges, F. J.: The Therapeutic Use of Tryparsamide in Neurosyphilis, J. A. M. A. **80**: 1497 (May 26) 1923.

for the patient thus limited us to a dosage level lower than the smallest repeated dose (100 mg. per kilogram) observed to produce any effect whatever in rabbit syphilis.

We have treated eight patients with early syphilis. Of these, seven had early secondary syphilis, the average duration of infection being three months; the eighth had a seronegative chancre. Tryparsamide was given at weekly intervals in doses averaging 3.3 gm. and ranging as high as 7 gm. Two patients received six injections; two were given five, and the remainder, two or three each. In six there was no evidence of regression of lesions, and in three patients followed with repeated dark field examinations, actively motile spirochetes could be demonstrated in open lesions throughout the period of tryparsamide treatment (three, five and six weeks, respectively). In two instances, slight healing of some lesions occurred, though in both these patients, other fresh lesions appeared during treatment. The following is a typical case record:

CASE 1.—*Early secondary syphilis in 1919. Reinfection (seronegative primary syphilis) in 1923. Second attack treated with tryparsamide. No improvement in lesion. Positive Wassermann reaction developed during treatment.*

A white man, aged 25, in July, 1919, was treated with six injections of an arsenical product for secondary syphilis. There was no further treatment, and repeated Wassermann

TABLE 1.—*Treatment in Case 1*

Dates	Drug	Blood Wassermann	Lesion	Dark Field
1/20/23	.....	Negative	.....	+++
1/22/23	.....	Negative		
1/24/23	Tryparsamide, 2.0 gm.	Negative	.....	+++
1/31/23	Tryparsamide, 3.0 gm.	Positive	Slight healing..	+++
2/ 7/23	Tryparsamide, 4.0 gm.	Positive	Lesion larger..	++++
2/13/23	Arsphenamin, 0.4 gm.	Positive	.....	++++
2/20/23	Arsphenamin, 0.4 gm.	Positive	.....	0
2/27/23	Arsphenamin, 0.4 gm.	Doubtful	Healed	
3/ 6/23	Arsphenamin, 0.4 gm.	Doubtful		
3/13/23	Arsphenamin, 0.4 gm.	Negative		
3/20/23	Arsphenamin, 0.4 gm.	Negative		

tests during the next two and one-half years were negative. In January, 1923, another sore on the penis developed. Two weeks later, many motile spirochetes were found in its secretion.

Simultaneous employment of tryparsamide in early syphilis was made by Pearce,[7] who used even larger doses than ourselves. Her results were similar to, but slightly more favorable than our own. In lesions that appeared to be on the verge of spontaneous regression, healing was hastened by the drug, and the blood Wassermann reaction was usually reduced toward negative. However, the results were, in her experience, as in our own, not comparable with those obtainable with the arsphenamins.

Though eight cases are admittedly a small number on which to base judgment, the lack of any demonstrable therapeutic effect on lesions or the disappearance of surface organisms justifies our deduction that in early syphilis, as far as can be determined at present, tryparsamide is of no value as a spirocheticidal drug within the limits of safety to the patient.

TRYPARSAMIDE IN LATE SYPHILIS

We have treated twenty-four patients with late syphilis, in some of whom healing of lesions could be measured; in others, the response of the blood Wassermann reaction or symptomatic improvement (cardiovascular group) constitutes the basis for opinion. Tryparsamide was given at weekly intervals without other medication, the dose ranging from 1 to 3 gm. The latter level has not been exceeded. A course of treatment consisted of from four to twelve injections.

So far as the healing of lesions is concerned, our results wtih tryparsamide in cutaneous tertiary syphilis are almost as poor as in early syphilis. In two patients, large gummas were unhealed after eight and nine injections, a total of 16 and 27 gm., respectively, of the drug, though in each instance a little arsphenamin caused rapid resolution of lesions. In a woman with bilaterally symmetrical nodular serpiginous syphilids on both forearms, the lesions disappeared on one arm, while they

TABLE 2.—*Treatment in Case 2*

Date	Drug	Blood Wassermann	Lesion	Comment
1/31/23	Tryparsamide, 2.0 gm.	Positive		
2/ 7/23	Tryparsamide, 2.0 gm.	Positive		
2/14/23	Tryparsamide, 2.0 gm.	Positive		
2/23/23	Tryparsamide, 2.0 gm.	Positive		
3/ 2/23	Tryparsamide, 2.0 gm.	Positive	Evidence of slow healing	
3/ 9/23	Tryparsamide, 2.0 gm.	Positive		
3/16/23	Tryparsamide, 2.0 gm.	Positive		
3/28/23	Tryparsamide, 2.0 gm.	Positive	.....	Gain of 13 lbs. (6 kg.)
4/20/23	Arsphenamin, 0.4 gm.	Positive	Lesion worse than on admission	
4/27/23	Arsphenamin, 0.4 gm.	Positive		
5/ 4/23	Arsphenamin, 0.4 gm.	Positive	Lesion completely healed	
5/11/23	Arsphenamin, 0.4 gm.	Positive		

actually grew worse on the other after six injections of 2 gm. each. In another patient with a leg gumma, healing did occur, but four months (nine doses totaling 17 gm.) were required to produce a result usually obtained with arsphenamin in a few days. Case 2 illustrates the course of events in a lesion unimproved by tryparsamide, but rapidly healed by subsequent arsphenamin:

CASE 2.—*Tertiary Syphilis. Large gumma of posterior pharyngeal wall unimproved by tryparsamide.*

A negro, aged 39, had had a sore throat for eleven months, much worse in the two months before admission (Jan. 31, 1923). Examination showed undernutrition, weight 140 pounds (63.5 kg.), and a huge, shallow ulceration, about 4 cm. in diameter, covering the posterior pharyngeal wall. The lesion

TABLE 3.—*Effect of Tryparsamide on the Blood Wassermann Reaction in Late Syphilis*

Case	Diagnosis	Previous Treatment	No. of Doses of Tryparsamide	Total Dose, Gm.	Blood Wassermann at the Time of Dose 1	2	3	4	5	6	7	8	9	10	11	12
2	Gumma, pharynx	—	8	16.0	4	4	4	4	4	4	4	4	.	.	.	.
15	Subcutaneous gumma	—	9	17.0	0	0	0	1	0	2	3	4	4	3*	0	0
16	Aortitis	—	8	8.0	4	4	4	4	4	4	4	4	.	.	.	.
5	Aortitis	—	12	24.0	4	4	4	4	4	4	4	4	4	4	4	4
17	Aortitis	3 mo.	10	20.0	0	0	0	0	0	0	0	0	0	0	0	4†
18	Congenital	4 mo.	6	6.0	2	3	2	4	4	4	.	.	.	.	.	.
19	Latent; WaR	—	10	30.0	3	2	2	4	3	3	2	1	4	3	.	.
20	WaR fast	1 yr.	6	18.0	4	4	4	1	0	0	.	.	.	.	.	.
10	WaR fast	1 yr.	7	21.0	2	2	2	2	3	3	2	.	.	.	.	.
21	Leg gumma	3 mo.	9	27.0	4	4	4	4	4	4	4	4	4	.	.	.
22	Congenital	9 mo.	11	15.8	4	4	4	4	4	4	4	4	4	4	4	.
23	Congenital	3 mo.	4	4.1	4	4	4	4	.	.	.	.	.	.	.	.
24	Congenital	10 mo.	5	8.0	4	4	4	4	4	.	.	.	.	.	.	.
25	Syphilitic nephritis	2 wk.	4	6.0	4	4	4	4	.	.	.	.	.	.	.	.
26	Latent; WaR	3 mo.	6	12.0	4	4	4	4	4	4	.	.	.	.	.	.

† This recurrence of a positive Wassermann reaction occurred three weeks after the last injection of tryparsamide.
* At this point, arsphenamin was begun; rapid drop after one injection of arsphenamin.

was covered with a gummy, purulent discharge. Aside from hyperreflexia, the examination was otherwise negative.

In a fifth patient of this group, long free of syphilitic manifestations, an active lesion actually developed during the course of tryparsamide therapy.

Cardiovascular syphilis offers certain analogies, in its pathologic anatomy and response to ordinary anti-

syphilitic treatment, to neurosyphilis. Since tryparsamide has been found of value in the latter condition, it seemed possible that cardiovascular syphilis also might be benefited. We have treated a number of patients with lesions of this type, of whom five are available for discussion at the present time. Two of these had aortic insufficiency, two aortitis without valvular lesions, and one a large thoracic aneurysm. Two of these patients died suddenly while under treament with tryparsamide.

In one other patient, decompensation set in during tryparsamide treatment. The remaining two showed marked improvement.

The results obtained in cardiovascular syphilis are obviously inconclusive. Further study of the effect of the drug in this group of patients is advisable, within the restrictions of dosage already mentioned.

The effect of tryparsamide on the blood Wassermann reaction [9] in late syphilis is of interest. In seven of our twenty-four late cases, the Wassermann reaction was either negative on admission or had been made so by previous treatment, and remained negative during tryparsamide. The course of the test in fifteen of the remaining seventeen cases is shown in Table 3. It will be noted that a reversal of the Wassermann reaction was accomplished in only one patient; in twelve, it remained persistently positive, while in four, a change occurred toward the positive side of the scale. Two of these patients had negative tests at the start of treatment, which became completely positive during tryparsamide, while in two others the intensity of a partially positive reaction was increased. This phenomenon, which has also been noted in our group of neurosyphilis patients, is difficult to explain, but, together with the almost complete absence of obvious tryparsamide effect in the Wassermann positive group, it suggests that the drug is not likely to prove the equal of the arsphenamins in the treatment of late or Wassermann-fast syphilis.

It is possible that the effect of tryparsamide in tertiary syphilis, especially cutaneous lesions, may be enhanced or diminished by the stage of development of the lesion, and that maximal effect may occur when the patient's own defense mechanism has initiated the process of spontaneous regression. In our patients with gummas, on the contrary, lesions were in the process of growth. Under these circumstances, and using an average dose as small as 2.6 gm. (43 mg. per kilogram), we have seen no evidence that the drug is of value in this stage of syphilitic infection, and in certain instances small doses (2 gm. or less) seem actually to have done harm. It may be that the use of larger doses would produce more pronounced therapeutic results; but, for reasons to be detailed later, we do not believe that tryparsamide should be substituted for already existing methods of treatment in the ordinary types of tertiary syphilis. In cardiovascular syphilis, on the contrary, further trial is indicated, partly because of the superior penetrability of the drug into tissues apparently inaccessible to arsphenamin, partly because the therapeutic results obtainable with arsphenamin and mercury are usually poor.

9. The technic employed in performing the blood Wassermann reaction has been described in detail by Keidel, Albert; and Moore, J. E.: The Wassermann Reaction in the Johns Hopkins Hospital, Bull. Johns Hopkins Hosp. 34:16 (Jan.) 1923.

TABLE 4.—*Effect of Tryparsamide in Neurosyphilis*

Diagnosis	Total Cases	Clinical Result: Arrest	Clinical Result: Improved	Clinical Result: Unimproved	Blood Wassermann: Reversed	Blood Wassermann: Reduced	Blood Wassermann: Always Negative	Blood Wassermann: Always Positive	Blood Wassermann: Increased	Cerebrospinal Fluid Results: Cells: Negative	Cells: Reduced	Cells: Unchanged	Globulin: Negative	Globulin: Reduced	Globulin: Unchanged	Wassermann: Negative	Wassermann: Reduced	Wassermann: Unchanged	Gold: Negative	Gold: Reduced	Gold: Unchanged	Mastic: Negative	Mastic: Reduced	Mastic: Unchanged
Early neurosyphilis	3	1	..	2	..	..	2	1	..	1	1	..	1	1	..	1	1	..	1	1	..	2	..	..
Parenchymatous (general paralysis, tabes, taboparesis, asymptomatic paresis	27	18	4	5	1	3	11	11	1	13	4	3	5	13	9	8	14	5	10	7	8	8	7	6
Meningovascular, late	10	9	1	..	..	..	7	..	3	5	1	..	7	3	..	9	1	..	6	1	3	9	..	1
Total	40	28	5	7	1	3	20	12	4	19	6	3	13	17	9	18	16	5	17	9	11	19	7	7

TRYPARSAMIDE IN NEUROSYPHILIS

Early Neurosyphilis.—When invasion of nervous tissues by the spirochete is detected coincidently with or shortly following early secondary syphilis, whether clinical symptoms or signs (neurorecurrences) are present or whether the diagnosis rests on the presence of spinal fluid abnormalities only, the therapeutic problem is still that of early syphilis. It is possible that the organism has not yet had time to reach locations inaccessible to ordinary antisyphilitic drugs, and that by their judicious use it may be completely destroyed. At any rate, brilliant therapeutic results may usually be achieved with the arsphenamins and mercury.

We have administered tryparsamide to three patients with early neurosyphilis. In two of these, the diagnosis was based on positive spinal fluid examinations only. The cytobiology of the fluid was reversed to negative by tryparsamide in one instance, and in the other was markedly reduced. Neither patient developed clinical signs of neurosyphilis during the period of treatment, but in one of them a recurrent secondary skin rash appeared on the day of the twelfth injection of tryparsamide. It was particularly striking that in this patient the drug was apparently successful in controlling the nervous system infection, even though its spirocheticidal properties in the dose employed were so weak that the generalized infection was wholly unimpeded.

The third patient in this group offers further evidence as to the comparative value of tryparsamide and arsphenamin in early neurosyphilis:

CASE 6.—*Early secondary syphilis; eighth nerve neurorecurrence; clinically worse under tryparsamide; subsequent improvement from arsphenamin.*

A white woman, aged 37, seen, Nov. 17, 1922, had syphilis of five weeks' duration. There was a profuse maculopapular syphilid and the scar of a healed chancre. Between Nov. 24, 1922, and Jan. 12, 1923, she received six injections of arsphenamin, 0.3 gm. each. The blood Wassermann reaction promptly became negative. From January 12 till February 16, she received no treatment. On the latter date, she returned complaining of severe headache and tinnitus in the left ear. Otologic examination on this date was completely negative, but

the spinal fluid showed 35 cells, globulin 4 plus, Wassermann reaction positive with 0.2 c.c. of fluid, and a mastic curve reading 5543210000.

February 21, she was given a single injection of arsphenamin, 0.2 gm., which immediately relieved her symptoms. Again she lapsed from observation, however, returning once more, April 6, with the statement that for two weeks tinnitus on the left had returned, together with vertigo and impairment of hearing. Tryparsamide, 1 gm., was given April 6 and 13. Two weeks later, hearing was worse and vertigo so severe as to interfere with walking. Otologic tests now showed marked impairment of the cochlear branch on the left. Eight subsequent doses of arsphenamin brought about partial subjective and objective relief.

Several considerations lead us to advise against the use of tryparsamide in early neurosyphilis. The optic nerve is often involved, which is, we believe, an absolute contraindication to the use of the drug. The disease process is an acute one, and the present-day conception of the genesis of neurorecurrences and their pathologic anatomy indicates that the lesion is an acute tissue reaction to the presence of foci of spirochetes. Such foci frequently involve the auditory nerve, and preservation of the function of hearing is attained only by prompt therapeutic intervention with powerful spirocheticidal drugs. Satisfactory clinical results having been obtained with the arsphenamins, it seems inadvisable to substitute a weaker spirocheticidal agent.

Late Neurosyphilis.—The results obtained with tryparsamide in neurosyphilis, especially in general paralysis, by Lorenz, Loevenhart, Bleckwenn and Hodges,[8] have aroused much interest. These investigators have treated institutionalized patients, the majority of whom had definite psychoses, and about half were advanced general paralytics. None of their patients had been under treatment for at least six months before beginning tryparsamide. Though, during the early stages of their work, they used large doses of tryparsamide (from 5 to 8 gm.) alone, their eventual routine of treatment consisted in courses of tryparsamide and mercuric salicylate, a course consisting of eight intravenous injections of 3 gm. each of tryparsamide plus nine intramuscular injections of mercuric salicylate. Between courses, a period of several weeks' rest from treatment was allowed to elapse. As a rule, they gave two, sometimes three, courses of treatment.

Our own material, consisting of forty cases, differs from that of Lorenz and his associates in several important particulars. In only two or three of our patients was there a psychosis so severe as to demand hospitalization. Almost all patients have been treated on an ambulatory basis, and represent, certainly so far as the patients with general paralysis are concerned, less advanced stages of disease than in the Wisconsin series. Secondly, thirty-two of our forty patients had already been subjected to prolonged and intensive antisyphilitic treatment, sometimes with intraspinal therapy; and in all instances there had been slight or no serologic improvement, though symptoms and physical signs had often already disappeared before tryparsamide was begun. It is fair to say that in many patients we turned to tryparsamide as a last resort, after all other methods at our disposal had failed to produce results. Finally, we have not followed a set routine in the use of tryparsamide. We have given the drug at weekly intervals, but the number of doses in a course varies from six to eighteen, courses being separated by interim mercury by inunction, rather than by a rest period. We have not employed mercury simultaneously with tryparsamide, but in a few instances have given courses consisting of alternate doses of an arsphenamin and tryparsamide, or alternate intraspinal arsphenaminized serum and tryparsamide. Most important of all, from the standpoint of comparison of our results with those of the Wisconsin group, the single injection dosage given to many of our patients has usually been smaller than in their experience, though in the aggregate some of our patients may have received more of the drug because of the greater number of injections. The reason for this caution is to be found in the ocular damage occasionally produced by tryparsamide.

TABLE 5.—*A Percentage Comparison of the Results of this Study with those of Lorenz et al.*

Diagnosis	Total Cases	Clinical Result			Blood Wassermann				Cerebrospinal Fluid Results													
									Cells			Globulin			Wassermann			Gold			Mastic		
		Arrest	Improved	Unimproved	Became Negative	Reduced	Remained Positive	Increased	Negative	Reduced	Unchanged	Negative	Reduced	Unchanged	Negative	Reduced	Unchanged	Negative	Reduced	Unchanged	Negative	Reduced	Unchanged
Parenchymatous neurosyphilis (general paralysis, taboparesis, asymptomatic general paralysis):																						
Lorenz, Loevenhart, Bleckwenn and Hodges	78	62.8	15.3	21.7	83.3	15.3	1.2	..	62.8	37.1	..	42.3	50.0	7.6	34.6	52.5	12.8	17.9	57.6	24.3	..	..	..
This study	27	66.6	14.8	18.5	6.6	20.0	73.3	8.5*	65.0	20.0	15.0	18.5	48.1	33.3	29.6	51.8	18.5	43.5	26.0	30.4	38.0	33.3	28.5
Meningovascular neurosyphilis:																						
Lorenz and associates	10	90.0	10.0	..	80.0	20.0	..	..	60.0	40.0	..	50.0	50.0	..	40.0	50.0	10.0	40.0	50.0	10.0	..	..	..
This study	10	90.0	10.0	..	..	..	..	30.0*	83.3	16.6	..	70.0	30.0	..	90.0	10.0	..	60.0	10.0	30.0	90.0	..	10.0

* These figures represent the percentage of patients developing positive blood Wassermann reactions during tryparsamide from the number whose tests were originally negative.

Our results are in essential agreement with those of Lorenz and his co-workers. It is not possible in a limited space to enter into such details as dosage or duration of treatment, which perceptibly influence results. Like the Wisconsin group, we have been especially interested in serologic changes[10] following tryparsamide treatment, as an objective expression of the extent to which disease processes may be influenced. Disregarding for a moment the factor of previous treatment, our results for the whole group of patients are shown in summary form in Table 4, while in Table 5 we present a percentage comparison of our data with the Wisconsin report. In these and subsequent tables, we have divided our material into two large groups for purposes of discussion. The parenchymatous neurosyphilis group (twenty-seven cases) includes thirteen patients with general paralysis or taboparesis, three of whom were juvenile general paralytics; six patients with tabes dorsalis, and eight cases with asymptomatic general paralysis, that is, a typical general paralytic picture in the serology of blood and spinal fluid, but no definite mental or neurologic changes.

In spite of these differences in material and procedure, our results are in essential agreement with those of Lorenz and his co-workers. It is not possible in a limited space to enter into such details as dosage or duration of treatment, which perceptibly influence results. Like the Wisconsin group, we have been especially interested in serologic changes[10] following tryparsamide treatment, as an objective expression of the extent to which disease processes may be influenced. Disregarding for a moment the factor of previous treatment, our results for the whole group of patients are shown in summary form in Table 4, while in Table 5 we present a percentage comparison of our data with the Wisconsin report. In these and subsequent tables, we have divided our material into two large groups for purposes of discussion. The parenchymatous neurosyphilis group (twenty-seven cases) includes thirteen patients with general paralysis or taboparesis, three of whom were juvenile general paralytics; six patients with tabes dorsalis, and eight cases with asymptomatic general paralysis, that is, a typical general paralytic picture in the serology of blood and spinal fluid, but no definite mental or neurologic changes.

10. A description of the various tests employed on the cerebrospinal fluid is given by Moore, J. E.: Studies in Asymptomatic Neurosyphilis, II, The Classification, Treatment and Prognosis of Early Asymptomatic Neurosyphilis, Bull. Johns Hopkins Hosp. **33**: 231 (July) 1922.

The meningovascular group includes diffuse cerebrospinal syphilis of various types.

Brief study of these tables offers convincing evidence of the beneficial effect of tryparsamide on the cytobiology of the spinal fluid. In fourteen patients with late neurosyphilis, including six from the parenchymatous group (three with general paralysis, three with tabes), and eight from the meningovascular group, all phases of the spinal fluid examinations were rendered completely negative. In the whole group of patients there was only one in whom some improvement in the fluid did not occur as a result of tryparsamide therapy.

TABLE 6.—*Average Treatment Prior to Tryparsamide in Neurosyphilis Group*

Diagnosis	Total Cases	Previously Treated	Duration of Treatment, Months: Minimum	Duration of Treatment, Months: Maximum	Duration of Treatment, Months: Average	Number Injections or Arsphenamin Given*: Minimum	Number Injections or Arsphenamin Given*: Maximum	Number Injections or Arsphenamin Given*: Average	Number of Intraspinal Treatments†: Minimum	Number of Intraspinal Treatments†: Maximum	Number of Intraspinal Treatments†: Average	C.S.F. Results: Rendered Negative	C.S.F. Results: Moderately Improved	C.S.F. Results: Slightly Improved	C.S.F. Results: Unimproved
Parenchymatous (general paralysis, taboparesis, tabes, asymptomatic general paralysis)	27	22	5	72	16	6	45	21	3	22	8	..	5	5	12
Meningovascular	10	7	5	36	21	10	54	30	..	..	..	..	2	2	3

* Every patient received interim mercury and potassium iodid between courses of arsphenamin, the amount depending on the duration of treatment.

† Sixteen of the twenty-two patients in this group were treated intraspinally.

In fourteen patients with late neurosyphilis, including six from the parenchymatous group (three with general paralysis, three with tabes), and eight from the meningovascular group, all phases of the spinal fluid examinations were rendered completely negative. In the whole group of patients there was only one in whom some improvement in the fluid did not occur as a result of tryparsamide therapy.

From the clinical standpoint, ten patients were regarded as arrested, and seventeen as improved, by previous treatment. These results were bettered by tryparsamide. Of eight previously untreated patients, five are regarded as arrested, two improved, and only one as unimproved. From the previously treated group, twenty-two are considered to be arrested, three improved, and four unimproved. Six of our patients have remained well for as long as three years following the institution of tryparsamide.

With regard to the blood Wassermann reaction, a curious phenomenon is observed. In fourteen instances, the test was negative when tryparsamide was begun, and remained so. In eleven, it was positive at the start of treatment, but in only two of these was any change toward the negative phase apparent as the result of treatment. In four patients, the blood Wassermann reaction was negative when tryparsamide was started, and became completely positive during the course, even though in the same patients the spinal fluid was simultaneously changing toward negative. The same type of response was seen in patients with tertiary syphilis, as mentioned above.

In this point only do our results differ from those of Lorenz and his associates. So far as clinical and cerebrospinal fluid results are concerned, the percentages are surprisingly close. The Wisconsin group, however, obtained a reduction or a reversal of the blood Wassermann reaction in 98.7 per cent. of their cases, as compared with only 26.6 per cent. in our material. The explanation for this variance is not clear to us. The only essential difference in treatment is that the Wisconsin workers employed a somewhat larger unit dose of tryparsamide plus mercuric salicylate in combination with it, while we used tryparsamide either alone or (in a few cases) in combination with an arsphenamin. It is hardly probable that the addition to the scheme of treatment of mercuric salicylate, incapable in itself of accomplishing any appreciable clinical or serologic result in neurosyphilis, would greatly augment or fortify the action of tryparsamide, unless such action depends on obscure chemical changes that are as yet unknown.

Turning now to a comparison of the results obtained with the arsphenamins and tryparsamide, an even more striking demonstration of the value of the latter appears. In Table 6 appears a brief summary of the duration and amount of routine antisyphilitic treatment; that is, arsphenamin, mercury and, in the parenchymatous group, intraspinal therapy, given to twenty-nine patients. In the average case, treatment lasting about eighteen months had failed to accomplish a reversal of the spinal fluid abnormalities to negative. Practically no betterment had occurred in fifteen cases; in seven there was slight improvement, consisting chiefly in a reduction of the cell count and the globulin content; while in only seven cases was there any diminution in the strength of the Wassermann reaction, and this test had become completely negative in only one of these.

TABLE 7.—*A Comparison of Serologic Results from Tryparsamide with Those Previously Obtained in the Same Patients from the Arsphenamins*

Diagnosis; Type of Neurosyphilis	Number of Cases	Results Obtained with	Blood Wassermann: Reversed	Blood Wassermann: Reduced	Blood Wassermann: Always Negative	Blood Wassermann: Always Positive	Blood Wassermann: Increased	C.S.F. Summary: Rendered Completely Negative	C.S.F. Summary: Moderately Improved	C.S.F. Summary: Slightly Improved	C.S.F. Summary: Unimproved	Cerebrospinal Fluid Details: Cells: Negative	Cells: Reduced	Cells: Unchanged	Globulin: Negative	Globulin: Reduced	Globulin: Unchanged	Wassermann: Negative	Wassermann: Reduced	Wassermann: Unchanged	Gold: Negative	Gold: Reduced	Gold: Unchanged	Mastic: Negative	Mastic: Reduced	Mastic: Unchanged
Parenchymatous (general paralysis, taboparesis, tabes, asymptomatic general paralysis)	19	Arsphenamin (in 16 cases intraspinal) Tryparsamide	3	..	7	9	..	..	3	5	11	5	3	8	..	10	9	1	6	12	3	..	16	2	4	13
			1	1	9	7	1	6	7	5	1	12	1	2	7	9	3	8	10	1	9	6	3	9	3	3
Meningovascular	7	Arsphenamin	5	..	2	..	..	..	2	2	3	..	..	4	..	4	3	..	4	3	1	..	5	..	..	6
		Tryparsamide	..	..	4	..	3	6	1	..	..	4	..	..	7	..	..	7	..	..	6	1	..	7	..	..

A comparison of these results with those later obtained in the same patients by tryparsamide appears in Table 7. In the columns dealing with the changes in the various fluid tests, attention is particularly directed to the contrast between arsphenamin and tryparsamide in the number of times any of the five tests are rendered negative or are unchanged. The use of tryparsamide in patients previously unimproved by intensive routine treatment constitutes a fairly rigid test of the value of the drug. The results in this series fully justify, in our opinion, its continued use in neurosyphilis.

In two instances we have seen serologic improvement following tryparsamide with a later serologic relapse when the patient was put back on arsphenamin. This would seem to strengthen the possibility that, so far as neurosyphilis is concerned, tryparsamide is more active than any of the arsphenamins.

The case records which follow are intended to show typical examples of tryparsamide response in the various groups of patients treated, and illustrate more fully than explanation the value of the drug.

CASE 8.—*Taboparesis. Marked clinical, but only slight serologic improvement from intensive intravenous and intraspinal arsphenamin. Marked serologic improvement from tryparsamide.*

A white man, aged 35, had had syphilis twelve years before; treatment consisted of pills and rubs for two years. In 1921 there was no complaint. The patient was physically normal except for sluggish, irregular pupils.

There was no gain in weight. The mental and physical status were unchanged. The patient is working. There was a relapse in the cerebrospinal fluid following the lapse in treatment from August, 1921, to February, 1922; a slight serologic response followed the first course of small doses of

TABLE 9.—*Treatment in Case 8*

					Cerebrospinal Fluid									
							Wassermann							
Dates	Drug	Number of Doses	Total Dose, Gm.	Blood Wassermann	Cells	Globulin	0.2 C.c.	0.4 C.c.	0.6 C.c.	0.8 C.c.	1.0 C.c.	Gold	Mastic
1/6/22	.....	..	....	.....	10	+++	2	4	4	4	4	5554321000	
1/6 to 6/8/22	Arsphenamin.....	9	3.6										
	Neo-arsphenamin.....	6	4.35										
	Intraspinal arsphenaminized serum	6	81 c.c.	Always positive									
6/3/22	.....	..	....	.....	2	+	0	0	0	0	0	2*2*111100000	4331000000
6/19 to 9/8/22	Mercurial ointment and potassium iodid												
9/8 to 10/14/22	Arsphenamin.....	3	1.2										
	Neo-arsphenamin.....	3	1.25										
	Intraspinal serum.....	3	38 c.c.										
10/7/22	.....	..	....	.....	3	+	0	2	4	4	4	5554210000	2321000000
10/14/22 to 1/6/23	Tryparsamide.....	12	13.5	Always positive									
1/6 to 3/17/23	Mercurial ointment and potassium iodid												
3/24/23	.....	..	....	.....	12	±	0	0	0	0	0	1111100000	3210000000
3/31 to 6/30/23	Tryparsamide.....	9	20.0										
	Sulpharsphenamin.....	3	1.7	Always positive									
6/30/23	.....	..	....	.....	4	0	0	0	0	0	0	1111000000	1100000000

A white man, aged 40, with no history of early syphilis, for eight months had depression, memory lapses, and short confusional attacks. The pupils were unequal and of Argyll Robertson type; knee and ankle jerks were absent; there was slight ataxia, change in disposition, and memory and speech defect.

All symptoms disappeared during arsphenamin therapy; the patient remains well and is working. There was a loss of 9 pounds (4 kg.) during tryparsamide. There was temporary

tryparsamide; a prompt change occurred after the second course, when larger doses were employed.

CASE 11.—*Secondary syphilis in July, 1919; lapsing treatment; neurorecurrence; left seventh nerve paralysis. During next three years, cerebrospinal fluid worse in spite of intensive arsphenamin therapy. Under tryparsamide, serologic cure.*

A white man, aged 50, was admitted, July 8, 1919, with multiple moist papular lesions (of a secondary type) on the penis. The blood Wassermann reaction was negative, but

TABLE 11.—*Treatment in Case 10*

					Cerebrospinal Fluid									
							Wassermann							
Dates	Drug	Number of Doses	Total Dose, Gm.	Blood Wassermann	Cells	Globulin	0.2 C.c.	0.4 C.c.	0.6 C.c.	0.8 C.c.	1.0 C.c.	Gold	Mastic
2/9/21	.....	..	....	.....	7	++++	4	4	4	4	4	5555552200	5554321000
2/19 to 7/21/21	Arsphenamin.....	10	4.15										
	Swift-Ellis arsphenaminized serum intraspinally	10	153 c.c.	Positive to negative									
7/29/21	.....	..	....	.....	4	++	4	4	4	4	4	1122211000	3442200000
8/1/21 to 2/10/22	No treatment												
2/10/22	.....	..	....	Positive	24	+++	4	4	4	4	4	5555432100	5542100000
2/15 to 5/13/22	Trysparsamide alternating with neo-arsphenamin	12	14.0	Positive (water bath) to negative (icebox)									
		12	7.35	Negative (icebox) to positive (icebox)									
5/13 to 12/13/22	No treatment												
12/13/22	.....	..	....	.....	6	++	4	4	4	4	4	2222111000	5543210000
12/26/22 to 5/8/23	Tryparsamide.....	20	42.5	Positive to negative (icebox)									
6/9 to 7/20/23	Mercurial ointment and potassium iodid, 60 drops												
7/20/23	.....	..	....	.....	1	+	0	0	0	1	3	1111000000	2100000000

serologic improvement in June, 1922, followed by a subsequent relapse. The patient developed recurrent hemorrhagic rashes following the arsphenamins; these phenomena were absent after tryparsamide. After the ninth dose of the second tryparsamide course, transient blurred vision appeared, rapidly clearing up when sulpharsphenamin was substituted. Clinically, the disease process is arrested.

CASE 10.—*Asymptomatic neurosyphilis, Group 3. No serologic improvement from combined intravenous and intraspinal arsphenamin. Marked improvement from tryparsamide.*

many spirochetes were found in the lesions. From July 10 to August 18, a course of arsphenamin was given, following which the patient lapsed. One month later (Sept. 18, 1919), he developed an acute facial paralysis, was untreated for the subsequent two months, and in December, 1919, developed a recurrent secondary palmar syphilid.

All symptoms were relieved by arsphenamin. There was no gain in weight during tryparsamide. The patient remains well and is working. There were: (1) gradual increase in positivity of the cerebrospinal fluid during arsphenamin

therapy; (2) prompt drop to normal after tryparsamide; (3) recurrence of positive blood Wassermann reaction during tryparsamide, this occurring while the cerebrospinal fluid was becoming normal.

REACTIONS FROM TRYPARSAMIDE

The only serious drawback to the use of tryparsamide encouraged by Pearce,[6] who was first to apply it to man, was the occurrence of amblyopia. Impairment of vision developed, in her experience, only in patients with moderately or markedly advanced trypanosomiasis of the central nervous system, and not at all in the early stages of the disease. The phenomenon seemed to depend further on the size of the dose given, the upper limit of safety apparently ranging from 50 to 80 mg. per kilogram, and on the spacing of injections. An interval shorter than one week was especially likely to be followed by visual disturbance. The transient dimness or blurring of vision was usually mild in degree, though in four patients it was marked. On withdrawal of the drug there was always some improvement, though in a few instances there was definite residual impairment of vision.

Early in our own experience with syphilitic patients, the same difficulty was encountered. Fourteen patients, among about 150 treated, have complained of dimness of vision during tryparsamide treatment. In ten of these, the visual impairment was slight in degree and cleared up at once when the drug was stopped. In one, a patient whose original lesion was syphilitic neuroretinitis, there was a slight permanent visual defect; while in three instances, disturbance of division was severe and there was a marked residuum. All of these fourteen patients had neurosyphilis, and in three there was present preexisting syphilitic disease of the optic nerve. We have not seen an instance of amblyopia in early or late syphilis without involvement of the central nervous system. The lesion produced by tryparsamide is apparently a typical toxic amblyopia, due to retrobulbar neuritis, and quite similar to the effects of atoxyl.

Illustrative cases follow:

CASE 12.—*Tabes dorsalis; optic atrophy with moderate visual impairment. Treatment, two doses of tryparsamide, 2 gm. each. After the last injection, rapidly failing vision progressing to almost complete loss. Gradual partial recovery.*

A white man, aged 51, seen in April, 1919, had had some genital sores in 1886, which went untreated. In 1898 he had a complete ptosis of the left lid and diplopia lasting for seven months, treated with potassium iodid. In 1912, there developed incontinence of urine; and in 1919, difficulty in walking, paresthesias, loss of potentia and weakness. Examination disclosed unequal, irregular, Argyll Robertson pupils. The existence of optic atrophy was noted, but, unfortunately, no accurate data regarding the degree of visual impairment were provided. However, this was moderate in degree, so that the patient was still able to read. The ankle jerks were absent, and there was marked ataxia of the lower extremities. The blood Wassermann reaction was negative, but the spinal fluid showed 54 cells, globulin 3 plus, Wassermann reaction positive with 0.2 c.c. of fluid, and general paralytic colloidal curves.

During 1919 and 1920, the patient received twenty-six intravenous injections of arsphenamin, and was under treatment consisting of mercury by inunction and potassium iodid in large doses for thirteen months. This treatment brought about no clinical or serologic improvement, and toward the last of it, the patient tolerated both arsphenamin and mercury very badly.

TABLE 12.—*Subsequent Treatment in Case 11*

					Cerebrospinal Fluid									
							Wassermann							
Dates	Drug	Number of Doses	Total Dose, Gm.	Blood Wassermann	Cells	Globulin	0.2 C.c.	0.4 C.c.	0.6 C.c.	0.8 C.c.	1.0 C.c.	Gold	Mastic
9/25/19	.....	..	....	Positive Dec. 1919, promptly reversed to negative. WaR recurrence; Sept., 1922, again reduced to negative by 6 arsphenamins	5	0	0	0	0	0	0	1111100000	
Dec.'19 to Jan.'23	Arsphenamin..... Mercurial ointment and potassium iodid	54 87 wk.	20.5										
During this period, C. S. F. examinations as follows:													
1/17/21	.....	..	....	.....	B. F.	+++	0	0	—	—	4	1111000000	4322000000
10/ 1/21	.....	..	....	.....	5	+	0	0	3	4	4	1111110000	2221000000
11/ 4/21	(after 46 arsphenamins).....	..	....	.....	88	+	4	4	4	4	4	1111100000	5543210000
1/30 to 6/15/23	Tryparsamide.....	..	....	Negative at start, recurred to positive by 13th dose and remained positive									
7/14/23	.....	..	....	.....	4	0	0	0	0	0	0	1111100000	0000000000

Feb. 4 and 11, 1921, he was given tryparsamide, each dose 2 gm. The night of the second injection his eyesight rapidly became worse. February 14, three days later, vision was 20/70 in each eye, falling to 20/200 by the 16th. By February 19, vision was light perception only. Ophthalmologic study, February 16, showed nothing except primary optic atrophy, which had been known to exist before. There were no central scotomas.

During the next few months there was gradual partial recovery, but vision remained at a permanently lower level than before treatment with tryparsamide.

Eleven neurosyphilitic patients, accepted for treatment on the basis of objectively normal eyes, have developed mild and transient amblyopia, often preceded for a few hours or days by the complaint of flashes or glimmering of light before the eyes, a phenomenon apparently dependent on irritation of the nerve or retina. This bore no particular relation to the dose employed. One instance occurred after four injections, the first of 0.5 gm., the rest of 1 gm. each. Several have developed after a few weekly injections of 2 gm., and in one of these (Case 13) there was permanent residual damage. In some of our mild cases, we have found, as did Pearce in Africa, that it was possible to begin the drug again after complete disappearance

of the mild disturbance, and to reach the initial level of dosage without a recrudescence of symptoms.

Although we have as yet observed no instances of visual damage in syphilitic patients without central nervous system involvement, the possibility of such a disaster constitutes our chief objection to the use of tryparsamide in tertiary syphilis. It may be true that therapeutic results better than those obtained by us in this type of case might be secured by the use of large doses (from 3 to 5 gm. or more) of the drug; but the almost complete absence of effect on the healing of cutaneous lesions or on the Wassermann reaction produced by an average dose of 2.5 gm. in our series makes us feel that results from larger doses would probably not be as good as those obtainable with the arsphenamins. If the drug is recommended for general use in late syphilis, moreover, it will be used by many physicians unaccustomed to the interpretation of minor neurologic evidence of central nervous system infection, and unfamiliar with the importance of routine study of the spinal fluid. Under these circumstances, it is inevitable that a certain number of patients with neurosyphilis will be inadvertently treated, and, in view of the especial liability of neurosyphilitics to amblyopia noted above, with the almost certain result of serious visual damage.

The extreme gravity of causing visual impairment of any degree leads us to believe that, for the present at least, the use of tryparsamide ought to be confined to those classes of syphilitic patients in whom satisfactory therapeutic results cannot be accomplished with any other means. In the whole group of patients with late syphilis, excluding only those with cardiovascular or neurosyphilis, one can reach an eminently satisfactory therapeutic conclusion with arsphenamin and mercury with absolutely no risk of damaging such a vital function as vision. We do not feel justified, therefore, in advising the use of tryparsamide, in any dosage sufficiently large to be effective, as a substitute for a known safe and active form of treatment in tertiary syphilis.

The most important prerequisite in the use of this drug is, in our opinion, the proper selection of patients for treatment. To the usual complete physical and neurologic examination and preliminary study of the serology of blood and cerebrospinal fluid should be added a careful preliminary examination by a competent ophthalmologist, including study of the fundi, visual fields and visual acuity. Needless to say, any patient found to have already existing disease of the optic nerve or retina, particularly optic neuritis or neuroretinitis, or primary or secondary atrophy, should be rigidly excluded from tryparsamide treatment. During the course of treatment, further tests of visual acuity should be occasionally repeated, and reliance placed on these and on subjective sensations. Furthermore, in view of the occurrence of mild amblyopia in patients with objectively normal eyes, we believe that treatment should be begun cautiously, the initial dose 1 gm., the second 2 gm., and the third and subsequent does never greater than 3 gm. At the slightest complaint of flashes of light or "glimmering vision," or of blurred or dim vision, the drug should be immediately discontinued.

Among the 200 or 300 patients so far treated by Pearce and by the Wisconsin group, no serious untoward effect other than amblyopia has been observed. In our series, however, one instance of hemorrhagic disease has occurred, apparently due to bone marrow damage of the type known to follow other arsenicals.

THE EFFECT OF TRYPARSAMIDE ON NUTRITION

In common with others who have worked with this drug, we have been struck by the fact that some patients gained markedly in weight, and the general physical condition improved. We have definite information available regarding the weight curves during a single course of tryparsamide (from four to eighteen doses) in fifty patients. In twelve there was no gain or loss; in nine, a slight loss in weight occurred during treatment (minimum 1 kg.; maximum, 9 kg., the latter in a general paralytic whose clinical course was rapidly down-hill, average loss 3 kg.). Twenty-nine patients, however, gained in weight during their treatment, the average gain being 5 kg. In a few instances we have employed the drug solely for its tonic effect, sometimes with startling results. For example, a girl with congenital syphilis, aged 24, weighed 41.8 kg. at the beginning and end of the first course of arsphenamin. During the subsequent four weeks she was given a weekly injection of 1 gm. of tryparsamide, with no other change in therapy, diet or mode of living. In these four weeks she gained 5.9 kg. (13 pounds) and has maintained this gain during the following year. In about half the cases of this type, a satisfactory gain in weight has followed the use of the drug; in the other half, apparently similar clinically, no gain has resulted. The question apparently hinges on factors with which we are as yet unfamiliar.

SUMMARY

The place of tryparsamide in syphilotherapy has still to be defined. Our experience indicates its value in certain types of neurosyphilis, and, together with the results of the Wisconsin workers, leads us to think it a more effective drug than any other now at our disposal. In other forms of syphilis, in which the nervous system is not involved, we have seen no evidence that the drug is of any value, except for its tonic effect in undernourished patients. It appears to be contraindicated in early syphilis because of its comparatively feeble spirocheticidal activity. In tertiary and latent syphilis, also, our experience leads us to believe that it is inferior to the arsphenamins, and that, if used at all in this stage of the disease, it should not replace the arsphenamins or mercury, but only supplement them. For the present, therefore, its use should, we think, be restricted to neurosyphilis, and, possibly, to cardiovascular syphilis. It is emphasized that the use of tryparsamide is to be avoided in all cases in which optic nerve impairment already exists, and it is recommended that during tryparsamide administration close attention be given to the fundus of the eye and the sight.

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Tuberculosis Mortality in Colorado.—The average death rate for tuberculosis (all forms) in Colorado for the period 1908-1920 was 208.9 per hundred thousand persons, against 147.5 for the registration area of the United States during the same period. However, when the number of deaths of persons whose cases arose outside of the state was deducted, a striking difference was noted. These deaths numbered 17,080. Deaths of individuals whose cases were known to have developed in Colorado numbered 3,484, giving a rate of 30.8 per hundred thousand. From 1908 to 1920 the total number who died within three months after arrival in Colorado was 4,848, and the number who died within one year after arrival, 9,539.—*U. S. Public Health Rep.* **38**:2887 (Dec. 7) 1923.

NASAL OPERATIONS IN BRONCHIAL ASTHMA *

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It is interesting to note that in Salter's [1] classic and exhaustive treatise on asthma, in which the cases are reviewed in the greatest detail, no observations are recorded of the condition of the nose and throat in the

In some patients with asthma, extensive nasal symptoms are present, but there is no evidence that the two groups of symptoms stand in the relation of cause and effect. The nasal changes found in asthmatic patients are not specific for asthma. Polypi, hypertrophic changes, spurs and deviations of the septum may occur. The relief in asthmatic patients following nasal operations may be coincident, such as we often obtain from any new or exciting remedial measure, including even psychic influence.

Clinical Results

	Patient	Sex*	Age of Onset	Age First Seen	Age Last Seen	Heredity	Hay-Fever	Nasal Operation	Age	Local Effect	Effect on Asthma
1.	G. A.	♀	Child	20	28	—	—	Nasal operation, tonsillectomy	19	Obstruction relieved	Unimproved
2.	M. A.†	♀	26	31	31	+	+	Right turbinectomy	30	.....	Unimproved
3.	R. C.	♂	3	14	14	+	—	Tonsillectomy	11	.....	Unimproved
4.	H. D.	♂	24	27	27	—	—	Polypi removed	24	.....	Attributes asthma to nasal operation
5.	G. E.	♂	3	9½	9½	—	—	Tonsillectomy	8½	.....	Unimproved
6.	J. F.	♂	25	30	38	—	—	Nasal operation	28	.....	Unimproved
7.	I. F.	♂	23	26	31	—	—	Nasal operation	23	Hypertrophy, right middle turbinate	Unimproved
8.	J. F.	♂	44	51	52	+	—	Nasal operation	23	.....	Before asthma
9.	L. G.‡	♀	2	21	28	—	—	Nasal operation	13	Unilateral nasal obstruction; atrophic rhinitis	Unimproved
10.	H. G.	♂	26	30	30	—	—	Right nasal operation	27	Nasal breathing free	Unimproved
11.	E. M. G.	♀	20	40	46	—	+	Nasal operation	39	Nose fairly free	Unimproved
12.	L. H.	♀	28	28	32	+	—	Tonsillectomy	..	.....	Before asthma
13.	I. H.	♂	1 mo.	24	25	—	—	Operation for nasal obstruction	22	Polypi returned	Unimproved
14.	M. J.	♀	22	24	24	—	—	Turbinectomy	22	Hypertrophy, left turbinate	Unimproved
15.	I. J.	♂	20	35	42	+	+	Nasal operation	25-30	Nose fairly free	Unimproved
16.	J. O. A. K.§	♀	44	54	54	+	—	Nasal polypi	22-40	Unimproved	Unimproved
17.	F. L.	♀	18	21	27	+	—	Right nasal operation	19	Polypi and hypertropy, left turbinate	Unimproved
18.	R. L.	♀	6	24	24	—	—	Nasal operation and turbinectomy	23-24	Improved	Unimproved
19.	M. L.	♂	4 wk.	11½	12	+	—	Tonsils and adenoids removed	8	Nose clear	Unimproved
20.	S. M.	♀	37	45	45	+	—	Tonsillectomy, right middle turbinectomy	45	Nasal obstruction	Unimproved
21.	E. M.	♀	24	34	38	—	—	Nasal operation	28	Nasal breathing improved	Unimproved
22.	S. N.	♂	4	7	7	+	—	Tonsillectomy	5	Nose free	Unimproved
23.	A. O.	♂	33	35	43	—	—	Nasal operation	32	Slight nasal obstruction	Unimproved
24.	H. P.	♂	Child	10½	11	+	—	Tonsillectomy	9	Nasal breathing free	Unimproved
25.	H. J. P.	♂	20	38	45	+	+	Nasal polypi and tonsillectomy	37, 38, 45	Nose free	Unimproved
26.	M. R.	♀	11	17	23	+	—	Nasal operation and tonsillectomy	11, 12, 14, 15, 18, 23	Atrophic rhinitis	Unimproved
27.	S. S.	♀	26	44	51	+	+	Tonsillectomy; nasal operation	29	Nose free	Unimproved
28.	S. S.	♂	6	27	27	—	—	Several nose and throat operations	10	.....	Before asthma
29.	A. S.	♀	22	34	35	+	+	Nasal operation	26	.....	Before asthma
30.	H. S.	♀	16	17	18	—	—	Tonsillectomy; nasal operation	10, 16	Nose free	Unimproved
31.	H. W.	♂	13	18	19	+	—	Tonsillectomy; nasal operation	14, 18	Nose free	Unimproved
32.	L. W.	♀	5½	12½	13	—	—	Tonsillectomy	7	Nasal congestion	Unimproved
33.	R. K.	♀	31	31	36	+	+	Turbinectomy; polypi removed	35	Nasal obstruction	Unimproved

* Male is indicated by ♂; female by ♀.

† This patient had attacks of paroxysmal sneezing in the morning which she could sometimes relieve by placing her finger on the soft palate.

‡ The rhinologist reported: "The patient has a deviated septum and hypertrophy of both turbinated bones. I strongly advise operative intervention."

§ This patient had operations for nasal polypi repeatedly every year, and when last seen she still had bilateral hypertrophied turbinates and nasal polypi, more marked on the left side. It is possible, in cases like these, that the nasal changes are secondary developments, possibly even the result of congestion consequent on the hay-fever and asthma.

causation of the disease. Since then, an occasional case has been reported in which an apparent cure was achieved by removing some gross nasal defect, such as polypi.[2]

As a result, it is now commonly assumed that local conditions and malformations of the nose and upper respiratory tract are direct and important causes of asthma, especially as reflex relations between the nose and the bronchi are often manifested. With this conception in view, it has been the usual procedure to perform extensive and repeated operations on the nose and throat in these patients.

I have not been able to find any analysis of a series of cases to show what actually is the result of nasal operations in asthmatic patients observed over a period of time.

In analyzing ninety-four consecutive cases of bronchial asthma that have been under my personal observation for a number of years, I have had the opportunity to notice the effects of nose and throat operations on thirty-three of these. It is my purpose in this communication to present the results in these cases, viewed from the standpoint of the clinician.

In fifteen cases, relief of nasal obstruction was obtained. In two of these, atrophic rhinitis resulted as a serious sequel. In the other cases, the operation was of no benefit.

* From the Medical Service, Beth Israel Hospital.

1. Salter, H. H.: Asthma: Its Pathology and Treatment, New York, William Wood & Co., 1882.
2. Proc. Laryng. Soc. London, May 5, 1899, p. 83.

It would, indeed, be proof of the influence of nasal disease on asthma if surgical treatment could sometimes relieve the paroxysms. But in none of these cases has operation been so successful. In most cases the improvement that resulted, even as concerned the local condition, was only temporary and incomplete; and in many cases the local condition for which the operation was performed recurred. Even in patients in whom there was definite relief of obstruction and in whom nasal breathing became free, the asthma was not influenced.

At times the apparent hopelessness of asthma demands some action, and persons who have suffered from the disease will readily undergo any treatment that offers a prospect of relief. But, in my experience, the nose and throat should be left alone in asthma, except when the rhinologic condition itself demands attention.

It is not to be expected from an operation on the nose that the asthma will be at all influenced.

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PARINAUD'S CONJUNCTIVITIS

WITH DEMONSTRATION OF THE LEPTOTHRIX OF VERHOEFF *

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In 1889, Parinaud [1] described a rare form of conjunctivitis characterized by the formation of small vegetations in the conjunctiva and enlargement of the preauricular glands. According to Parinaud, the vegetations are red or grayish yellow, at first semitransparent, later opaque, and may attain the size of the head of a large pin. Between the large vegetations are small yellow granules not dissimilar to those of tuberculosis of the conjunctiva. The growths are usually situated in the fornices, but may also be found on the tarsus or the bulbar conjunctiva. There is a mucofibrinous secretion but no purulent discharge. The eyelids are puffy, and present irregular hard nodules to the examining finger. Soon the preauricular glands become enlarged. The glands in the anterior triangle of the neck or even the supraclavicular glands may also become enlarged. These glands may suppurate. The process may last up to six months. Occasionally the onset is accompanied by a febrile reaction.

In 1904, Verhoeff [2] thus described the histopathologic characteristics of the lesion of Parinaud's conjunctivitis: "The lesion consists essentially of marked cell necrosis in the subconjunctival tissue with extensive infiltration of the latter with lymphoid and phagocytic epithelioid cells. This is accompanied by chronic inflammatory reaction of the deeper tissues, leading to the process of organization and the production of new fibrous tissue."

Verhoeff,[3] in 1913, by a special gram stain, demonstrated a filamentous organism in the areas of cell necrosis. This organism he has classified as a leptothrix.

The case reported here is one of Parinaud's conjunctivitis in which the filamentous organism was found.

REPORT OF CASE

History.—M. B., a woman, aged 22, living at home, came to the outpatient department of the Massachusetts Charitable Eye and Ear Infirmary in the service of Dr. George S. Derby, Dec. 18, 1922, complaining of puffiness of the eyelids, with slight pain and discharge from the left eye. The family history was negative as to chronic disease and affections of the eyes. The patient had undergone a tonsillectomy at the age of twelve years. She had influenza three years before admission. Her hearing had been poor all her life. The family had one dog and two cats. The patient played considerably with one of the latter. None of the animals were diseased, as nearly as could be determined.

Fourteen days before, the patient had awakened in the morning with the lids of the left eye stuck together. She had no local pain, and felt perfectly well. Each morning thereafter the lids of the left eye were stuck together. About a week later, she noticed puffiness of the lids and began having slight pain in them. The pain and swelling gradually became worse, and at the time of admission she had a slight discharge from the eye.

Examination.—The right eye was essentially normal; the left displayed marked puffiness and redness of the lids, this being most marked on the lower lid. The external two thirds of the lower lid and the nasal third of the upper lid presented hard nodules to the examining finger. A small amount of grayish, stringy mucus was found in the conjunctival sac. There was a fold of swelling in the lower fornix, which extended from near the external canthus to within 1 cm. of the internal canthus. This area was elevated about 2 mm. and was 3 mm. broad, the surface being nodular with grayish streaks and dots which appeared to be beneath the epithelium. There was a similar area at the internal third of the upper fornix, which extended over the posterior margin of the tarsus. The portion over the tarsus had the appearance of granulation tissue, but was apparently covered with epithelium.

There was puffiness of the left parotid area, and the preauricular gland was enlarged to about half the size of a pigeon's egg. This gland was quite hard, but not tender to pressure. The patient had not noticed the puffiness and the enlarged gland before her attention was called to it.

Smears were made from the mucous secretion, and scrapings taken from a few of the small grayish areas in the conjunctiva. The external two thirds of the vegetation in the lower fornix was excised for microscopic examination. The patient was given a mild collyrium.

Course.—December 28 the patient had noticed no change except that the preauricular gland had become sensitive to pressure. The local examination was the same as on the previous date, except that the granulation in both fornices had extended farther toward the nose. There was now a gland, just below the left ear, that was almost the size of a pigeon's egg. The skin over this gland was red. The temperature was 99.8 F. The patient was admitted to the hospital for observation. The blood count by Dr. Evans showed: leukocytes, 7,200; polymorphonuclears, 65 per cent.; lymphocytes, 25 per cent.; eosinophils, 2 per cent.; transitionals, 8 per cent. The urine was negative.

December 31 the temperature had been ranging from 98.4 to 99.8 degress F. The swelling of the lids was less marked and the patient felt more comfortable.

Jan. 3, 1923 the eyelids felt more comfortable. The swelling of the lids was less marked. The swelling of the glands was more pronounced, and they were more sensitive to pressure. There were now a number of enlarged cervical glands noticed in the left anterior triangle of the neck, which were slightly tender to pressure. There were also a few enlarged glands just above the left clavicle.

January 4 the patient awakened with a marked itching all over her body, which was found to be covered with wheals, varying in diameter from 1 to 10 or 12 cm. The left hand and left knee were markedly swollen and red but not especially tender or painful. The eyelids felt better and the glands were less sensitive. The temperature was normal.

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* From the Massachusetts Charitable Eye and Ear Infirmary, Boston.
* Read before the New England Ophthalmological Society, Jan. 19, 1923.

1. Parinaud: Recueil d'ophthalmologie, 1889.
2. Verhoeff and Derby: Parinaud's Conjunctivitis, Arch. Ophth. **33**: No. 4, 1904.
3. Verhoeff, F. H.: Parinaud's Conjunctivitis: A Mycotic Disease Due to a Hitherto Undescribed Filamentous Organism, Arch. Ophth. **42**: No. 4, 1913.

January 7 the rash had entirely disappeared. The eyelids were still improving; the glands were less swollen and the temperature normal. The patient was discharged.

Pathologic Examination.—The smears and tissue scrapings were stained by the Verhoeff modified Gram stain, carbolfuchsin, methylene blue and hematoxylin and eosin. The excised tissue was fixed in Zenker's fluid without acetic acid, and embedded in celloidin. The sections were stained in hematoxylin and eosin, Mallory's connective tissue stain and Mallory's phosphotungstic and hematoxylin. Some of the sections were stained lightly in hematoxylin and eosin, followed by the Verhoeff modified Gram stain, as follows:

1. After lightly staining in hematoxylin and eosin, sections were washed in water and placed on a slide, and excess of water was blotted off.
2. They were placed in Sterling's gentian violet, twelve minutes.
3. They were removed from the slide with the water, and the excess of stain was washed off.
4. They were placed in compound solution of iodin, 1:2:100, twenty seconds.
5. They were then washed in water.
6. They were placed in 95 per cent. alcohol, in a small dish, from fifteen to twenty-five seconds.
7. Then in chloroform, in a small dish, from ten to fifteen seconds.
8. In oil of origanum, in a small dish, fifteen seconds.
9. In 95 per cent. alcohol, thirty seconds.
10. In oil of origanum. They were placed on a slide and blotted.
11. They were washed off thoroughly with xylene and blotted.
12. They were placed in xylene-balsam.

In none of the slides made from smears and tissue scrapings were micro-organisms found.

The sections stained in hematoxylin and eosin and Mallory's connective tissue stain showed the characteristic histopathology originally described by Verhoeff [3] in a single case, later confirmed by Bernheimer,[4] and fully verified by Verhoeff [5] in a large series of cases.

In and immediately surrounding the areas of cell necrosis described by Verhoeff, clumps of micro-organisms were found. In some of the areas these clumps were found to be arranged in rows filling the superficial lymph spaces. Scattered here and there between the clumps were found similar isolated micro-organisms. At first glance, the micro-organisms appeared to be broken chains of minute cocci, but on closer examination they are found to be very delicate filaments with single contours. In the clumps, these filaments were interwoven at random. They were straight, curved or bent at a right angle. In these filaments were dots from 0.3 to 0.6 micron in diameter, placed at intervals of from two to three diameters apart. Most of the dots were larger than the filaments, and extended above their surface.

COMMENT

The process of differentiating the filamentous organisms is a very delicate one, and unless the staining technic is adhered to closely, it will be impossible to bring them out. To get the best results, it is well to run several sections through to Step 5, and from there on differentiate each separately, varying each within the limits of 6 and 7. Dr. Verhoeff, in his work, found that about fifteen seconds in the chloroform gave the best results, but with the chloroform used in this work, ten seconds brought out the micro-organisms most distinctly. It is possible that different grades of chloroform might account for the difference in the time required to obtain the best results. Any slight error in the technic might make it impossible to stain the specimen. As an illustration: the corks of the compound solution of iodin and that of the specimen bottle were accidentally interchanged. The compound solution of iodin on the cork was sufficient to stain very slightly the sections. In none of these sections was it possible to bring out the micro-organisms until they had been thoroughly decolorized in 95 per cent. alcohol and chloroform.

The micro-organisms are found only in and about the areas of cell necrosis (phagocytic infiltration) which in vivo are the grayish yellow areas. It is therefore essential that one of these areas be included in a specimen for diagnosis or for demonstration of the organisms.

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4. Bernheimer: Ein beitrag zur Parinaud's Konjunktivitis, Klin. Monatsbl. f. Augenh. **44**: 323, 1906.
5. Verhoeff, F. H.: Observations on Parinaud's Conjunctivitis (Leptothrichosis Conjunctivae), Am. J. Ophth. **1**: 705 (Oct.) 1918.

THE DIAGNOSIS OF PREGNANCY

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Any test that offers even only presumptive evidence of the presence or absence of pregnancy, from conception to the third month, must obviously be of great value. Attempts to provide such tests are reflected in the complement deviation test, Abderhalden's dialysis test, interdermal reactions and the like. More recently the phenomena of renal glycosuria, epinephrin glycosuria and phlorizin glycosuria have come under investigation. In the last two years the literature [1] on this subject has been growing rapidly, chiefly in the German journals.

Our experience with some of these tests warrants the following conclusions:

1. Renal glycosuria, after 100 gm. of glucose, in pregnancy during the first three months, is a diagnostic sign of great value and a high degree of accuracy.

2. Phlorizin glycosuria is of little value, is at times misleading, and should be abandoned as a practical measure.

In March, 1921, we encountered, in a multipara, pregnant eight months, a glycosuria of alarming degree. A faint trace of sugar during pregnancy is a frequent occurrence, but this patient excreted 2 per cent. sugar in the urine; she gave a history of having attended a banquet the previous evening and of having eaten a large quantity of farinaceous food.

She was subjected to a sugar tolerance test, in a fashion that has become standard with us: The patient has a regular dinner at 6 p. m., and nothing thereafter but water; coal-tar products, acetylsalicylic acid and the like are interdicted; no breakfast, but water is permitted; the patient reports at the office at 9 a. m. At this time the bladder is emptied by voiding and the urine is examined, particularly for sugar, by Fehling's and Benedict's methods. A blood sugar estimation is made by the Epstein method. This method is chosen

1. Tarp, L.: Ugesk. f. Læger. **85**: 238-239 (April 5) 1923, abstr. J. A. M. A. **81**: 176 (July 14) 1923. Lewin, L.: Deutsch. med. Wchnschr. **49**: 117-118 (Jan. 26) 1923, abstr. J. A. M. A. **80**: 1492 (May 19) 1923. Köster, P.: Deutsch. med. Wchnschr. **49**: 182-183 (Feb. 9) 1923, abstr. J. A. M. A. **80**: 1656 (June 2) 1923. Burger, K.: Zentralbl. f. Gynäk. **47**: 260-262 (Feb. 10) 1923, abstr. J. A. M. A. **80**: 1111 (April 14) 1923. Gottschalk, A., and Strecker, J.: Klin.-therap. Wchnschr. **1**: 2467-2468 (Dec. 9) 1922, abstr. J. A. M. A. **80**: 515 (Feb. 17) 1923. Leskinen, S.: Finska Läkare sällsk. Handl. **64**: 584-590 (Nov.-Dec.) 1922, abstr. J. A. M. A. **80**: 736 (March 10) 1923. Bauer, A. W.: Zentralbl. f. Gynäk. **46**: 1413-1421 (Sept. 2) 1922, abstr. J. A. M. A. **80**: 149 (Jan. 13) 1923. Küstner, H.: Klin.-therap. Wchnschr. **1**: 312 (Feb. 11) 1922, abstr. J. A. M. A. **78**: 1935 (June 17) 1922. Hollingsworth, M. W.: California State J. Med. **20**: 344-346 (Oct.) 1922. Zondek, B.: Zentralbl. f. Gynäk. **46**: 851 (May 27) 1922, abstr. J. A. M. A. **79**: 1466 (Oct. 21) 1922. Seitz, A., and Jess, F.: München. med. Wchnschr. **69**: 6-7.

because of its simplicity and because of the lack of discomfort to the patient, for it is easily possible to secure enough blood from the finger or ear for the test. Furthermore, it is frequently possible to secure subsequent specimens from the original puncture wound (we use a Buerker lancet for this purpose). We find that the results of the Epstein method correspond very closely with those of the Benedict modification of the Folin and Wu method, being, as a rule, 0.02 per cent. higher.

If a glycosuria exists after fifteen hours of starvation, it is safe to consider its origin other than pregnancy. A blood sugar of greater than 0.150 per cent. will confirm this negative diagnosis. In the absence of urine sugar, and with a normal blood sugar of less than 0.150 per cent. (usually between 0.080 per cent. and 0.100 per cent), the test proceeds by the administration of 100 gm. (dry weight) of glucose in from 250 to 300 c.c. of water. This is usually unpleasant for the patient, though nausea or vomiting, if it occurs, is delayed until the forty-five minute period. To make the mixture more palatable, we have added lemon juice or chocolate flavor. We begin to count the time when the patient has finished the ingestion of the glucose, a step that usually takes about ten minutes. At the end of forty-five minutes the bladder is again emptied by voiding, the absence or presence of sugar and its quantity is determined, and a blood sugar estimation is made, often by way of the original puncture wound. Seventy-five minutes thereafter, i. e., at the end of a two hour period, the urine sugar and blood sugar tests are repeated and the patient discharged. More recently we have reduced the quantity of glucose from 100 to 50 gm., making our variations with regard to the patient's weight.

In this case the preliminary test revealed: urine sugar, absent; blood sugar, 0.096 per cent.; the forty-five minute test, urine sugar, 0.66 per cent.; nausea, slight; blood sugar, 0.144 per cent.; vomiting, negative; the two hour test, urine sugar, 4.60 per cent.; blood sugar, 0.148 per cent.

This, then, suggested renal diabetes (a very rare condition), hyperthyroidism or hyperpituitarism, or, in the light of more recent investigation, pregnancy. This patient had, at that time, a basal metabolic rate of plus 4 per cent., which is well within normal limits and excluded hyperthyroidism and hyperpituitarism. She went to term, was delivered normally, has had many subsequent urinalyses, and has consistently failed to show a glycosuria.

Frank and Nothmann [2] reported thirty cases of pregnancy demonstrated within the first three months by the sugar tolerance test. We began to apply this test in a practical way; not experimentally but only in cases in which it was important to make a diagnosis concerning pregnancy before the physical signs permitted. Excluding cases of hepatic disease, carcinoma of the alimentary tract and hyperthyroidism, we have performed this test on thirty-eight normal women, either pregnant or nonpregnant.

Of the thirty-eight women, eighteen proved, in the course of events, to have been not pregnant, sixteen proved to be pregnant, and four were lost to further observation. Of the eighteen nonpregnant women, seventeen gave a negative test, i. e., developed no glycosuria, and one gave a doubtful reaction. Of the sixteen women proved to be pregnant, fifteen gave positive reactions, and one a negative one. This failure is interesting, since the test was performed ten days after the first coitus and five days after the first missed menstrual period.

It is useless to reduce these data to percentages; the series is too small to make such figures of any value. They give us, however, an impression that the test has great usefulness in the early diagnosis of pregnancy. This is also the trend of opinion of those men who have used the test and reported their results.

We have had no experience with Roubitschek's test [3] —ingestion of only 10 gm. of glucose and hypodermic injection of 0.5 c.c. of epinephrin, 1 : 10,000, to the production of glycosuria in positive cases—though its author accredits it with diagnostic usefulness.

Kamnitzer and Joseph,[4] in 1921, reported their use of phlorizin in the diagnosis of pregnancy. This glucosid in larger doses (10 mg.) produces glycosuria without hyperglycemia in normal persons. It was supposed that the subthreshold dose for normal persons would produce glycosuria in pregnancy. They advocated the intramuscular injection of 2.5 mg. of phlorizin and Nylander's test for sugar in the urine thirty minutes later. More recently a proprietary preparation, in ampule form, of 2 mg. of phlorizin with a local anesthetic has appeared on the market. Such a simplification of the test, if it did not increase the factor of error, would be very welcome.

Our experience with phlorizin has, however, been disappointing. In seven cases of proved pregnancy, five gave positive reactions and two very doubtful ones. Of twelve nonpregnant cases, including three men, all gave positive reactions except two women. We then turned to the use of 1 mg. of phlorizin intravenously. The results were similarly disappointing. The majority of cases of pregnancy gave positive reactions; the nonpregnant, however, in the majority of cases, also gave a positive test. Any conclusions based on such a test must be highly unsafe.

We have, therefore, returned to the simple sugar tolerance test, using from 50 to 100 gm. of glucose, depending on the weight of the patient. The blood sugar at the forty-five minute period is the most important of the three estimations; the other two may be omitted, if time and circumstance demand it.

We have found that nausea or vomiting, if present, in the pregnant patients, rather regularly occurs at the forty-five minute period, at the height of the blood sugar curve; it is possible that the nausea of pregnancy is intimately associated with sugar metabolism.

We have found that the sugar tolerance test is of great practical value during the first three months of pregnancy, and that the positive reaction usually disappears thereafter, but frequently reappears during the last two months and persists several weeks after parturition. We have found that a large meal, rich in carbohydrates, may be substituted for the glucose; we then work on a two to three hour basis. Unfortunately, we have not had the opportunity to test a case of extrauterine pregnancy. In two cases of suspected abortion, the test has been positive and the histologic examination of curettings has discovered syncytial and decidual cells.

The assumption that in pregnancy the permeability of the kidney cells, per se, is increased, is unwarranted. It is, however, on such a basis that the rationale of the

2. Frank, E., and Nothmann, M.: München. med. Wchnschr. **67**: 1433 (Dec. 10) 1920.

3. Roubitschek, R.: Klin.-therap. Wchnschr. **1**: 220-221 (Jan. 28) 1922, abstr. J. A. M. A. **78**: 1768 (June 3) 1922.

4. Kamnitzer and Joseph: Med. Klin. **18**: 396-398 (March 26) 1922, abstr. J. A. M. A. **78**: 1855 (June 10) 1922.

phlorizin test is based. It seems to us more reasonable to postulate, in pregnancy, an imbalance in the internal secretory mechanism in this newly acquired physiologic state, and again in the later stages, preceding lactation. Such disturbances of internal secretion might well be looked for in the ovary, liver, thyroid and pancreas. It seems more reasonable to us to suppose that the mobilization of carbohydrates in liver and muscles is disturbed, and that the addition of an insult of 100 gm. of glucose rapidly brings the blood sugar content to the point of intolerance. The conservative mechanism then permits an overflow of sugar into the urine and frequently a disgorging of the remainder of the excess in the stomach.

We are convinced that, while the phlorizin test is highly untrustworthy, the simple glucose tolerance test should have a high presumptive value in the diagnosis of pregnancy before the third month.

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A STUDY OF THE ACUTE INFECTIONS OF THE THROAT AND RESPIRATORY SYSTEM *

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The problems involved in the occurrence and spread of the acute respiratory infections are so urgent and yet so complex that any contribution to the subject, no matter how small, has been deemed worth the publishing.

A monthly record of the acute infections of the throat and respiratory system has been kept for the last four years at the Cornell University medical adviser's office. This record has shown, year after year, a gradual rise to a maximum number of cases in January, February or March, and a gradual fall as summer approaches. The accompanying chart and Table 1 show that the year 1919-1920 was apparently an epidemic year for these diseases, and that this was followed by a year with few such infections. The year 1921-1922 shows a slightly increasing prevalence, and 1922-1923 shows the infections again assuming epidemic proportions.

TABLE 1.—*Incidence of Acute Infections of the Throat and Respiratory System in Male Students of Cornell University, Month by Month, for the Last Four Years*

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1919-1920	291	194	249	572	275	312	256	216	27
1920-1921	197	188	195	184	177	288	107	116	28
1921-1922	345	213	281	355	398	397	209	191	20
1922-1923	158	215	378	314	473	654	382	228	92

Table 2 gives an idea of the relative importance of these acute infections of the throat and respiratory system. It will be noted that from 11 to 17.5 per cent. of the work of the Cornell University medical adviser's office is concerned with just these particular types of infection; and, in certain months, as in January, 1920, as much as 26 per cent. of the consultations were in regard to an acute infection of the throat or respiratory system. To express this proportion in terms of time, more than one quarter of the physicians' time was being devoted during certain seasons to dealing with "colds" or their sequelae.

TABLE 2.—*Relative Importance of Acute Infections of Throat and Respiratory System*

Year	Total Consultations	Consultations for Acute Respiratory or Throat Infections	
		Number	Per Cent.
1919-1920	13,619	2,392	17.4
1920-1921	13,280	1,475	11
1921-1922	16,655	2,409	14.4
1922-1923	16,822	2,894	17.2

Such figures, however, still fall far short of presenting the respiratory disease problem in its full significance, for the reason that they ignore entirely the large number of mild respiratory infections that never come under the observation of the physician.

In order to gage approximately the number of these mild "colds," a questionnaire was given out, during the fall of 1923, to the 2,485 freshmen and sophomores in Cornell University, asking them how many "colds," on an average, they had had each year for the last three or four years. The results are given in Table 3.

It is difficult, of course, to answer with even fair accuracy the direct question as to how many "colds" there have been yearly for the last three or four years. It is very likely, however, that the answer would be of some value when tabulated with the answers of several

TABLE 3.—*Distribution of "Colds" According to Frequency*

	Group 1 None or One	Group 2 Two or Three	Group 3 Four or More
Men, per cent.	15.4	58.2	26.2
Women, per cent.	18.8	61.3	19.5
Average	17	60	23

hundred others. It seems fair enough to assume, therefore, that these figures are reasonably accurate, and that 23 per cent. of students at college age have "colds" four or more times a year as an average, 60 per cent. have "colds" two or three times a year as an average, and about 17 per cent. have "colds" once a year or not at all. Taking such figures at their face value and computing the incidence for respiratory infections in such a group of 5,000 students, it will be found that there were really among that group more than 12,000 "colds" last year, and of that whole number only 2,894 reported at the medical adviser's office for treatment or advice. The loss of time incurred by the immense number of these mild infections, and the decreased efficiency due to them, easily explain why employers of large groups of industrial workers are interested in any scheme that holds forth any promise of diminishing the incidence of these infections.

But what are some of the possible causes of this high respiratory disease rate, and why is it particularly high in January, February and March? Our answer, of course, lies somewhere in the general formula $D = \frac{NV}{R}$, i. e., the incidence of disease is directly proportional to the number and virulence of the attacking organisms, and inversely proportional to the general resistance of the patient's body.

* From the Department of Hygiene, Cornell University.

* Diseases listed as acute infections of throat and respiratory system: "influenza" ("cold" and fever), Vincent's angina, acute rhinitis, acute bronchitis, acute pleurisy, acute tonsillitis, acute pharyngitis, acute otitis media, peritonsillar abscess, acute tracheitis, pneumonia and acute sinusitis.

Under ordinary weather conditions at Ithaca, the months in which it is necessary to spend a large part of the time in closed and heated homes and class rooms (where the number of bacteria in the air unquestionably runs high in spite of various attempts at ventilation) are December, January, February and March. Of these months only December has been free from excessive numbers of "colds," and this very likely because ten days' figures are usually subtracted from the December report owing to Christmas vacation and closing of the office. Indirectly, it might be inferred, therefore, that indoor segregation is a definite factor in producing the January, February and March epidemics through increasing N.

Since all students are subjected to about the same number of attacking organisms, however, and some become infected as often as four or more times a year, and others practically never, it would seem that the numerous and variable factors that go to make up personal resistance (R) to infection must be the important determining factors; and an attempt was made to study these factors somewhat through the use of a questionnaire.

The 1,968 men of the freshman and sophomore classes were divided into three groups: (1) those having "colds" not at all or once a year; (2) those having "colds" two or three times a year, and (3) those having "colds" four or more times a year. The first and third groups were then presented with a questionnaire in the hope that the answers in the two quite different groups would show reason why one group so rarely had "colds" and the other so often had them. This was disappointing, however, as the results show (Table 4).

TABLE 4.—*Replies to Questionnaire*

Questions	Group 1, per Cent. Yes	Group 3, per Cent. Yes	Difference, per Cent.
Do you smoke more than 3 cigarets or pipefuls daily?.....	27	23	4
Have you ever had any operation on your nose or throat?.....	40	54	14
Do you breathe much air containing dust or gas?.....	18	23	5
Do you often breathe through your mouth when sleeping?.....	19	27	8
Do you average 8 or more hours sleep a night?.....	51	60	9
Do you average 9 hours of rather violent exercise a week?.....	67	81	14
Do you sleep with a draft blowing over your head?.....	14	13	1
Do you wear woolen underwear in the winter?	24	43	19
Are you subject to constipation?.	12	20	8
Do you perspire easily and freely on exertion?	73	81	8
Do you take a cold bath daily?....	34	28	6
Do your father and mother have "colds" frequently?	6	17	11
Do you wear rubbers or galoshes in wet wintry weather?.....	81	83	2

CONCLUSIONS

Such results, however, seem to point the way to a few cautious conclusions.

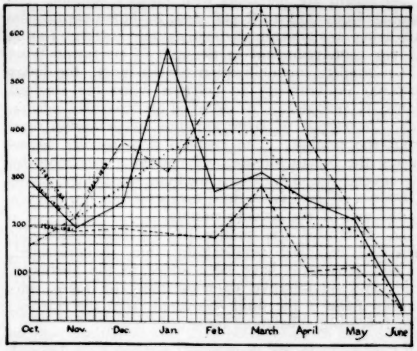
1. Tobacco, dust, gas, mouth breathing, sleep, drafts, constipation, perspiration, bathing and footwear are apparently not major factors in determining resistance to respiratory infections in this particular group.

2. Exercise appears as a liability rather than an asset in this group (probably because of improper care of the body in the stage of fatigue following the usual violent sport).

3. The use of woolen underwear is apparently no panacea for the prevention of "colds"; in fact, it seems almost safe to infer that the use of light underwear is preferable under conditions obtaining at Ithaca.

4. Heredity may be a factor in determining resistance through carrying on to the next generation a "catarrhal diathesis" or the opposite.

5. Since removal of nasal obstructions and diseased tonsils in more than half of the "four or more" group has not resulted in the reduction of the frequent "colds," it seems fair to conclude that nasal obstructions and diseased tonsils are not major factors in the majority of persons suffering with frequent "colds."



Acute infections of throat and respiratory system plotted month by month: Solid line, 1919-1920; broken line, 1920-1921; dotted line, 1921-1922; line of dots and dashes, 1922-1923.

6. Of all the factors listed, only one (that of underclothing) showed a difference of more than 15 per cent. in the two groups, and that only 19 per cent. It might be concluded, therefore, that, though underwear is of some importance, no major factor has been dealt with in the whole questionnaire.

What the major factors in susceptibility to "colds" are is, therefore, as far as the work at Cornell University is concerned, still a matter of conjecture. There is an inclination toward the supposition that there is a specific lack of immunity in certain persons to the organism or organisms that cause "colds"; but until the etiology of these infections is definitely settled, a specific prophylactic cannot be looked for.

As a test of the prophylactic value of the present respiratory vaccines, a small number of the "four or more" group was inoculated once a month with one of the much used types of respiratory vaccines on the market, but no reduction in frequency of "colds" was noted in the majority of cases. Investigation along this line seems to offer some hope of success, however, and the therapeutic inoculation of a large number of patients, while they are suffering from "colds," will probably be attempted the coming year. The objective will be to prevent severity, prolongation and complication (so often caused by the known secondary invaders). On theoretical grounds, at least, such an objective is not impossible of attainment if the respiratory vaccines are considered capable of combating the known secondary invaders; and if it is considered that the unknown virus itself (which we may assume is the true etiologic factor) is capable of running only a mild course.

QUANTITATIVE STUDY OF ANAPHYLACTIC CAPILLARY PERMEABILITY

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If the partially inflated lungs of dogs sensitized to horse serum are perfused with Locke's solution containing from 0.25 to 2 per cent. of horse serum, the following anapylactic phenomena are noted:[1] (*a*) A 75 per cent. reduction in the rate of perfusion flow. (*b*) Complete immobilization of the lungs, the lungs showing no tendency to collapse when the tracheal clamp is released. (*c*) Marked perivascular edema. (*d*) The escape of large amounts of perfusion fluid from the trachea. The tracheal flow usually begins during the fourth minute, and reaches a maximum by the seventh minute. With medium sized dogs, about 1,000 c.c. of perfusion fluid escapes from the trachea by the end of the seventh minute.

To determine the nature of the anaphylactically increased capillary permeability thus demonstrated, various substances have been added to the perfusion fluid, and quantitative determinations of these substances made in the fluid recovered from the trachea. The following substances have been tested:

1. *Carbon.*—India ink suspensions; particles from 0.25 to 1 micron in diameter. Typical reduction in perfusion rate; typical pulmonary immobilization; about 1,000 c.c. of perfusion fluid recovered from the trachea by the end of seven minutes. Tracheal fluid free from carbon particles.

2. *Starch.*—0.1 per cent. starch solution. Typical reduction in perfusion rate; typical pulmonary immobilization. Flow from the trachea 100 c.c. by the end of seven minutes. Tracheal fluid free from starch.

3. *Gum Arabic.*—0.16 per cent. solution. Marked reduction in the severity of the anaphylactic reaction, as shown by changes in perfusion rate; slight reduction in the degree of pulmonary immobilization. Flow from the trachea 50 c.c. by the end of seven minutes. Tracheal fluid contains 0.01 per cent. of gum arabic.

4. *Gelatin.*—0.33 per cent. gelatin ("difco") solution. Distinct reduction in the severity of the anaphylactic reaction, as shown by changes in perfusion rate; marked reduction in the degree of pulmonary immobilization. Flow from the trachea 25 c.c. by the end of seven minutes. Tracheal fluid has an average gelatin content of 0.12 per cent. during the first seven minutes, increasing to 0.25 per cent. gelatin by the tenth minute.

5. *Serum Proteins.*—2 per cent. horse serum. Typical anaphylactic reactions; tracheal flow, 1,200 c.c. Tracheal fluid contains 2 per cent. horse serum.

6. *Hemoglobin.*—0.2 per cent. laked horse blood. Typical anaphylactic reactions; tracheal flow, 1,000 c.c. Hemoglobin tint of the tracheal fluid identical with that of the perfusion fluid.

CONCLUSIONS

During the anaphylactic reaction in isolated canine lungs, therefore, the capillary endothelium offers no demonstrable resistance to the outward passage of hemoglobin and serum proteins. During the first seven minutes the passage of gelatin is retarded about 60 per cent., and that of gum arabic about 93 per cent. Starch and carbon particles are held back.

With gelatin, gum arabic and starch, the severity of the anaphylactic reaction is reduced. This is shown particularly by the reduced volume of fluid recovered from the trachea. Whether or not this gives a hint as to possible therapeutic methods, we have not attempted to determine.

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THE SIGNIFICANCE OF STREPTOCOCCUS HEMOLYTICUS IN SCARLET FEVER

AND THE PREPARATION OF A SPECIFIC ANTI-SCARLATINAL SERUM BY IMMUNIZATION OF THE HORSE TO STREPTOCOCCUS HEMOLYTICUS-SCARLATINAE

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The more or less constant presence of *Streptococcus hemolyticus* in the throats of persons suffering from scarlet fever has been known for a number of years. This organism is also the predominant causative agent of the many septic complications of the disease, such as otitis media, adenitis, cellulitis, interstitial nephritis, arthritis and septicemia. Such widespread and general relationship of *S. hemolyticus* to scarlet fever naturally has given rise to the view that the streptococcus may be the etiologic agent of the disease. This point of view caused much discussion during the first years of the present century, and led to the preparation of a number of antistreptococcic serums for the treatment of scarlet fever. The most important were those of Marmorek, of Aronson and of Moser. Since *S. hemolyticus* is known to be associated with a variety of pathologic manifestations, discussion concerning its primary significance in scarlet fever has largely revolved about the question of the specificity of the streptococcus associated with it. Moser [1] and Moser and von Pirquet [2] prepared immune serums, using the streptococcus of scarlet fever as antigen. Such serums were found to agglutinate specifically various strains of scarlatinal streptococci, but not hemolytic streptococci from non-scarlatinal sources. Meyer [3] and later Rossiwall and Schick [4] in general confirmed these results. On the other hand, Hasenknopf and Salge,[5] Aronson [6] and also Neufeld [7] failed to find definite specific relationships between the streptococci of scarlet fever, and are of the opinion that it is not possible to differentiate between types of hemolytic streptococci by means of the agglutination reaction.

Some evidence in favor of the specific relationship of *S. hemolyticus* to scarlet fever has been offered by the apparently beneficial effects obtained from the treatment of scarlatina by means of Moser's [8] antiserum. The significance of these results, however, was later clouded by the failure of others to obtain equally satisfactory effects. In 1905, Jochmann [9] published an article carefully weighing the evidence for and against

1. Moser, P.: Wien. klin. Wchnschr. **15**: 1053, 1902.
2. Moser, P., and von Pirquet, C.: Wien. klin. Wchnschr. **15**: 1086. 1902.
3. Meyer, F.: Deutsch. med. Wchnschr. **28**: 751, 1902.
4. Rossiwall, E., and Schick, B.: Wien. klin. Wchnschr. **18**: 3, 1905
5. Hasenknopf and Salge: Jahrb. f. Kinderh. **58**: 218, 1903.
6. Aronson, H.: Deutsch. med. Wchnschr. **29**: 439, 1903.
7. Neufeld, F.: Ztschr. f. Hyg. u. Infectionskr. **44**: 161, 1903.
8. Moser, P.: Jahrb. f. Kinderh. **57**: 1903.
9. Jochmann, G.: Ztschr. f. klin. Med. **56**: 316, 1905.

the specific etiologic relationship of *S. hemolyticus* to scarlet fever, and closing with the statement that "streptococci are, indeed, the most common and the most dangerous agents of secondary infection in the disease, but are not the true causative organisms of scarlet fever." Following this, the discussion more or less subsided, and it eventually became generally accepted that the hemolytic streptococcus of scarlet fever could not satisfactorily be differentiated from other hemolytic streptococci, and that it bore only a secondary relationship to this disease.

In 1919, Dochez, Avery and Lancefield [10] developed a method for the differentiation of biologic types of *S. hemolyticus*. This made possible the determination of a number of specific varieties of *S. hemolyticus* among a series of strains isolated from patients suffering from streptococcus bronchopneumonia. This discovery naturally led to a reexamination of the type of *S. hemolyticus* associated with scarlet fever. As a result of this study, it has been demonstrated by Dochez and Bliss,[11] by Bliss,[12] by Tunnicliff,[13] by Gordon,[14] and by Stevens and Dochez [15] that the type of hemolytic streptococcus found in the throats of scarlet fever patients is in general a specific type readily distinguishable from the types of *S. hemolyticus* causing other kinds of angina and septic conditions in general. In the course of the studies described, we have demonstrated the presence of the specific streptococcus of scarlet fever, in the local wound in wound scarlet, in the infected burn in burn scarlet, in the lochial discharge in puerperal scarlet, and in both patients and contaminated milk in a milk-borne epidemic of scarlet fever. Such results constitute very important evidence of the possible specific relationship of the streptococcus studied to scarlet fever.

Ever since the initiation of these studies, we have made repeated efforts to produce in animals with a scarlatinal type of *S. hemolyticus* a disease resembling scarlet fever. Our first positive result was obtained in a dog, three years ago. This animal showed a diffuse erythema lasting about forty-eight hours, followed some days later by extensive general desquamation. Subsequent attempts to produce the disease in dogs failed. A number of other animals have been used, including monkeys, rabbits, rats, mice, hogs and guinea-pigs. With improvement in the technic, it has been possible to produce in the two latter types of animals, more especially guinea-pigs, a condition resembling in its main features certain of the important phenomena of scarlet fever.[16] The animals develop fever and leukocytosis, and lose weight; on the second and third day they show a transient erythematous flush; and from the eighth to the twelfth day more or less general desquamation appears, most conspicuously on the pads of the feet. G. F. and G. H. Dick [17] have recently published the results of some human inoculations which were followed by what they consider to have been mild attacks of scarlet fever. The production of such experimental examples of scarlet fever has forged an additional link in the chain of evidence supporting the view that a specific streptococcus is the causative agent of scarlet fever.

From the beginning of our study of scarlet fever, we have been impressed with its similarity as a disease to diphtheria. Our hypothesis has been that the principal localization of the infection is in the throat in most instances, and that there the streptococcus in question elaborates a toxin which is absorbed and produces the rash and general symptoms. Analysis of the results obtained from study of the Schultz-Carlton blanching reaction lends support to the view that the rash in scarlet fever is a manifestation of a toxin. In view, therefore, of the similarity to scarlet fever of the symptom complex produced in guinea-pigs, and of the possibility of the formation of a soluble toxin in the living animal by the method used, we decided to immunize a horse by a similar procedure. After a course of immunization extending over a period of six months, the animal was bled and the serum tested in human cases of scarlet fever. Dr. Francis G. Blake has made the clinical observations. In brief, this serum possesses the same capacity to cause a local permanent disappearance of the rash in scarlet fever as does convalescent serum. Erythematous rashes recurring in conditions other than scarlet fever are not blanched by the serum. Normal horse serum does not possess the capacity to blanch the rash. The latter observation is in accordance with those made in the course of the study of the Schultz-Carlton reaction, since up to the present time no animal serums but only human serums have been found to possess the capacity of blanching the rash in scarlet fever. The antiscarlatinal serum has also been tested therapeutically in a number of human cases of scarlet fever. In general, the results have amplified and strengthened the deductions drawn from study of the blanching reaction. As a rule, the temperature falls promptly, the rash disappears entirely in from twelve to twenty-four hours, the general symptoms abate, and the angina improves.

Our belief is that the action of the serum is antitoxic in nature. This view is supported by the fact that antiserums prepared by us in the ordinary way by immunization of the animal to the dead or living bodies of *S. hemolyticus-scarlatinae* have not the power to blanch the rash in scarlet fever. Furthermore, the serum that we have developed has a very low agglutination titer, and when tested by an adequate technic, previously described, fails to protect mice against even a single lethal dose of the living streptococcus, although this organism is of relatively low virulence for animals.

We have made repeated efforts under a great variety of conditions and with many kinds of mediums to produce a soluble toxin in vitro. So far, no soluble poison of any considerable potency has developed. The lethal dose for rabbits and guinea-pigs has been from 5 to 10 c.c., and for white mice from 0.5 to 1 c.c. Lethal doses of this size are approximately as great as those required of most bacterial filtrates to kill small animals, and cannot be taken as evidence of the production, in vitro, of a true soluble toxin. In addition, prolonged immunization of animals to large amounts of filtrates from cultures of the specific scarlet fever streptococcus fails to give rise to a serum possessing the capacity to blanch the rash in human cases of scarlet fever.

CONCLUSIONS

Streptococcus hemolyticus is present in the throats at some time during the course of the disease in every

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17. Dick, G. F., and Dick, Gladys H.: Experimental Scarlet Fever, J. A. M. A. **81**: 1166 (Oct. 6) 1923; The Etiology of Scarlet Fever, ibid. **82**: 301 (Jan. 26) 1924.

instance of scarlet fever. This streptococcus constitutes a specific biologic type, and is not found in septic conditions other than scarlet fever.

By inoculation of guinea-pigs with this streptococcus, a disease resembling scarlet fever in its main features can be produced.

Immunization of the horse to the streptococcus in question gives rise to an antiserum which possesses the capacity to blanch the rash locally in scarlet fever and which, when used therapeutically, causes a marked abatement of all the symptoms. But slight evidence of the production of a toxin in vitro has been obtained up to the present time.

From the results detailed, it would seem that a specific streptococcus is the cause of scarlet fever, that the disease in its principal characteristics resembles diphtheria, and that both the natural immunity in human beings and the experimental immunity developed by inoculation of animals are antitoxic in nature.

SCARLET FEVER TOXIN IN PREVENTIVE IMMUNIZATION *

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After the production of experimental scarlet fever,[1] it was demonstrated that Berkefeld W filtrates of the hemolytic streptococcus, used in the successful inoculations, contain a toxic substance. When injected intracutaneously, in the proper dilution, this substance gives skin reactions that can be used to determine susceptibility to scarlet fever.[2] It was also shown that the toxicity of the filtrate is neutralized by addition of convalescent scarlet fever serum; and that persons who show positive skin tests before passive immunization with convalescent serum give negative tests afterward.

These results suggest that we are dealing with a toxic substance specific for scarlet fever, and that it might be used in the production of active immunity. After a number of preliminary tests to determine what amounts of the filtrate, injected intramuscularly, might be expected to give a reaction, the following attempts at immunization were made:

EXPERIMENT 1.—A healthy girl, aged 9 years, who had been under the observation of competent physicians since birth, had never had any sickness resembling scarlet fever. A skin test with 0.1 c.c. of a 1:1,000 dilution of the filtrate was strongly positive at the end of twenty-four hours. Four days after the skin test was done, 1 c.c. of a 1:100 dilution of the filtrate was injected intramuscularly in the right arm. Within five hours, a local reaction had begun. It was characterized by swelling, tenderness, heat and redness of the skin over the upper arm. This reaction reached a maximum about thirty-six hours after the injection, and began to subside twelve hours later. There was no recognized general reaction.

Four days after the first injection, when the local reaction had entirely subsided, 0.1 c.c. of the undiluted filtrate was injected in the left arm. Four hours after this dose, the child began to vomit. She was unable to retain any food during the afternoon and evening. At 5 p. m., eight hours after the injection, the temperature by mouth was 101.4 F. Physical examination was negative, except for a light rash, resembling the rash of scarlet fever, present over the body, arms, and legs. Pastia's lines were well marked. During that evening, the temperature was 101.8 F. The rash became more intense. It lasted through the next day and night, and began to fade forty-eight hours after the injection. The day after the injection, the temperature remained below 100. The next day it was below 99. The local reaction following the second injection was less marked than that following the first. During the third week after the rash, there was some desquamation of the hands.

On the twenty-third day, a skin test repeated with 0.1 c.c. of a 1:1,000 dilution was negative at the end of twenty-four hours.

Blood serum of this child obtained on the twenty-third day neutralized a 1:500 dilution of the filtrate. This was shown by mixing the serum with an equal volume of a 1:500 dilution of the filtrate and incubating thirty minutes. Skin tests were made in a susceptible person with this mixture, and with a similar mixture in which salt solution was used instead of serum. The serum mixture gave a negative result, while the salt solution mixture gave a positive skin test.

EXPERIMENT 2.—A young woman, who had no history of scarlet fever, showed a positive skin test. Two days later, she was given 0.5 c.c. of a 1:10 dilution of the filtrate. Three hours later, she had a slight, dull headache that lasted through the afternoon and evening. She said that, during the night, she noticed a flush over the body, and that it was still there in the morning. When she was seen, about twenty-four hours after injection, no rash was present. There was a marked local reaction. This lasted three days, and then subsided. There was no fever or nausea associated with the reaction.

A skin test on the eleventh day was slightly positive.

EXPERIMENT 3.—A young woman who gave no history of scarlet fever showed a strongly positive skin test. She was given 0.075 c.c. of the undiluted filtrate at 11:30 a. m. At 3:30 p. m., she began to feel slightly nauseated. At 6 p. m., she had no appetite, and complained of some dizziness and headache. The temperature by mouth was 99 F. At 9:30 p. m., she vomited. The patient said that, during the night, she noticed a reddening of the skin over the chest and in the bend of the elbows. The nurses in charge said that, during the night, they noticed a rash. It had disappeared in the morning. The highest temperature was 99.2.

A skin test done five days after the injection was slightly positive.

EXPERIMENT 4.—A young woman who had no history of scarlet fever showed a strongly positive skin test. She was given 0.1 c.c. of undiluted filtrate intramuscularly at 11:30 a. m. At 3:30 p. m., four hours after the injection, she said that she felt warm all over. At 4 p. m., her temperature was 99 F. At 10 p. m., she had a chill, followed by general malaise and nausea, without vomiting. The temperature, by mouth, was 101.6 There was a light scarlatinal rash over the whole body. The rash became somewhat more marked during the night. The temperature was normal in the morning. About twelve hours after its first appearance, the rash began to fade, and it was entirely gone forty-eight hours after the injection. There was comparatively little local reaction. The leukocyte count was 8,200.

A skin test, done on the sixth day after injection, was negative.

EXPERIMENT 5.—To determine the effect of heat on the action of the filtrate, portions of a 1:100 dilution of the filtrate were heated one hour at 55, 60, 65, 70, 80 and 90 C. Another portion was heated twenty minutes at 100 C. A skin test was made with each of these heated portions, and with unheated material of the same dilution. The tests made with the material heated at 100 and at 90 were entirely negative. The test made with the portion heated at 80 was faintly positive. The material heated at 70 C. gave a skin test only slightly less positive than that of the unheated material. Heating at 55, 60 and 65 C. resulted in no modification of the test.

CONCLUSIONS

These experiments show that when persons, with positive skin tests for susceptibility to scarlet fever, are injected with suitable quantities of the toxic filtrate,

* From the John McCormick Institute for Infectious Diseases.

1. Dick, G. F., and Dick, Gladys H.: Experimental Scarlet Fever, J. A. M. A. **81**: 1166 (Oct. 6) 1923.
2. Dick, G. F., and Dick, Gladys H.: A Skin Test for Susceptibility to Scarlet Fever, J. A. M. A. **82**: 265 (Jan. 26) 1924.

they may develop a scarlatinal rash with nausea, vomiting, rise in temperature, and general malaise. These symptoms appear within a few hours after the injection, and disappear within forty-eight hours. Following this reaction, the skin test is negative, or only slightly positive. The short interval between the injection and the beginning of the reaction, compared with the incubation period of about forty-eight hours described in experimental scarlet fever, and the more rapid disappearance of the symptoms, indicate that the effect is produced by a soluble toxic substance rather than by a filtrable virus. The resistance to heat at temperatures ordinarily employed to kill bacteria is further evidence that we are dealing with a toxin.

The similarity of the symptoms produced by the filtrate to those of scarlet fever, and the resulting modification of the skin test, indicate the production of some degree of active immunity to scarlet fever.

The neutralization of the toxic substance in the filtrate by the blood serum of a person who had received injections of the filtrate indicates that the toxic substance is a true toxin, capable of forming an antitoxin.

MENINGO-ENCEPHALITIC LESIONS AND PROTOZOAN-LIKE PARASITES

IN THE BRAINS OF APPARENTLY NORMAL LABORATORY ANIMALS COMMONLY EMPLOYED FOR EXPERIMENTATION *

E. V. COWDRY
AND
F. M. NICHOLSON
NEW YORK

The use of rabbits for the experimental study of the virus of epidemic (lethargic) encephalitis and allied conditions has been instrumental in directing attention to peculiar brain lesions, which were first noted in these animals by Bull [1] in 1917 and by Oliver [2] in 1922. These lesions are disturbing factors for the reason that, although no signs of disease can be detected clinically, they may be found in about 60 per cent. of ordinary stock rabbits.[3] The observation that we wish briefly to report is that the lesions in question are not confined to rabbits, but occur also in mice which likewise show every appearance of being healthy.

Infiltrative lesions precisely like those described by Bull and Oliver have been found by us in the brains in twenty-five out of 141 mice examined histologically. They were of the characteristic meningeal, perivascular, focal and subependymal types. As in the rabbit, lymphocytes predominated, and polymorphonuclear leukocytes were of rare occurrence. The topographic distribution of the lesions throughout the brain substance was also subject to similar variations.

Protozoan-like parasites were found in the brains of five of these twenty-five mice which exhibited lesions. In shape, they resembled straight or slightly curved rods. Measured in stained preparations after Zenker fixation, they were, on an average, from 1.8 to 2 microns in length and from 0.5 to 0.8 micron in diameter. Both ends were bluntly and uniformly rounded. Very rarely were pear-shaped parasites seen, or forms with pointed ends. They stained blue by Giemsa's method, pink with eosin, intensely red with fuchsin, and were somewhat resistant to decolorization by Gram's method. They exhibited marked internal organization in the possession of a well defined mass of material that stained intensely by both acid and basic dyes. Usually this was spherical, and was located at a point distant from one extremity by about one third of the total length of the parasite. Occasionally, this nuclear-like mass was divided into two parts, one situated at each end. Sometimes approximately one half of the length of the parasite was stained strongly, the other half very lightly. In all cases a fairly definite membrane limited its protoplasmic contents.

The parasites were seen free and within the macrophages in areas of infiltration, as well as in very characteristic cysts, which, in addition to being associated with the infiltrations, were found in other parts of the brain, which showed no reaction to their presence. These cysts often contained a hundred or more parasites closely crowded together. A very distinctive feature was the frequent occurrence to one side of a cyst of a large, flattened nucleus possessed of distinct and well formed nucleoli. The parasites called to mind so forcibly photographs published in July, 1922, by Wright and Craighead [4] that we sent some of our specimens to Dr. Wright, who expressed himself as convinced that the parasites which we have found in mice are the same as those which he and Craighead discovered in young rabbits.

Micro-organisms which appear to be of exactly the same kind have more recently been reported, also in association with meningo-encephalitic lesions in rabbits, in April, 1923, by Doerr and Zdansky, and in November, 1923, by Levaditi, Nicolau and Schoen, who, without reference to the previous description of Wright and Craighead, have introduced for them the term *Encephalitozoon cuniculi*.

* From the Laboratories of the Rockefeller Institute for Medical Research.

1. Bull. C. G.: J. Exper. Med. **25**: 557 (April) 1917.
2. Oliver, Jean: J. Infect. Dis. **30**: 91 (Jan.) 1922.
3. McCartney, J. E.: J. Exper. Med. **39**: 51 (Jan.) 1924.
4. Wright, J. H., and Craighead, E. M.: J. Exper. Med. **36**: 135 (July) 1922.

Clinical Notes, Suggestions, and New Instruments

SPIROCHETAL ABSCESSES OF THE LUNG

VANCE RAWSON, M.D., CHICAGO

In 1921, Kline [1] reported three cases of spirochetal pulmonary gangrene occurring in Montefiore Hospital, and referred to seventeen other cases he was able to find reported in the literature. In 1923, he [2] reported four additional cases from Cleveland, making a total of twenty-four cases at that time. This case is reported as adding another to the series.

His own cases were of gradual onset, the diagnosis not being made for some days; and all seven patients had severe dental caries, from which foci the spirochetes were obtained.

REPORT OF CASE

C. M., a man, aged 69, entered the Chicago Memorial Hospital, Sept. 3, 1923, gravely ill. June 8, while in Wisconsin on a vacation, he had a severe attack of tonsillitis, resulting in a peritonsillar abscess, which was evacuated, June 10. Three days after, this had extended to the anterior tissues of the neck, necessitating incision and drainage.

His physician at that time wrote that the patient came under his care a few days following the operation for peritonsillar abscess, and that there was a deep cellular abscess

1. Kline, B. S.: Spirochetal Pulmonary Gangrene, J. A. M. A. **77**: 1874 (Dec. 10) 1921.
2. Kline, B. S., and Blankenhorn, M. A.: Spirochetal Pulmonary Gangrene, J. A. M. A. **81**: 719 (Sept. 1) 1923.

of the right side of the neck, extending forward to the median line. Drainage was established. No smear was made at the time, as it was judged from the odor that it was a colon bacillus infection. Within a day or two there was observed a small opening leading from the external abscess to the peritonsillar abscess, thus making an opening through and through. The throat condition cleared up quite rapidly, but at the end of about ten days the patient complained of a pain in the left chest about the third interspace half way between the mammary and axillary lines. At that time the physician was not able to diagnose a lung complication, but the sputum showed evidence of Vincent's angina. The temperature was up and down from normal to 103 F.; the pulse likewise from 80 to 130; respiration was never below 30 and sometimes was 40. The drop in temperature, pulse and respiration came after the coughing up of a large quantity of sputum.

Early in August, the patient entered another hospital in Chicago, and from examination and roentgenograms a diagnosis of a small spirochetal abscess of the left lung, draining into a bronchus, was made. In the belief that this was in process of repair, the patient was sent back to the summer resort, where he progressed steadily downward.

September 3, and the following days, the patient looked very ill, and stated that he had lost between 40 and 50 pounds (from 18 to 23 kg.). The right chest was normal, but the left presented diminished expansion and moist râles. The heart was apparently normal and the blood pressure was: systolic, 120; diastolic, 80. The temperature ranged between 99 and 102 F. The pulse rate was from 100 to 120. The respirations varied between 30 and 48. The blood showed a marked secondary anemia, with 34,000 leukocytes, of which 96 per cent. were neutrophils. The sputum showed many cocci and spirochetes and fusiform bacilli. Roentgen-ray examination of the chest showed the right lung to be normal, but the left infiltrated with a pneumonitis and many large and small cavities.

Despite the administration of arsphenamin, resection of a rib and efforts to aspirate the cavities, the patient died, September 14, from cardiac dilatation.

Necropsy, performed, September 15, revealed these essential findings: multiple abscesses of the left lung, agreeing in the main with the roentgenograms; adhesive pleuritis of both lungs; acute focal myocarditis, with hypertrophy and dilatation of the heart. Microscopically, spirochetes were present in the lung tissues.

COMMENT

There was probable primary tonsillar spirochetal infection, with extension to the cellular tissues of the neck. There was absence of dental caries, as distinguished from Kline's cases. Early treatment with spirocheticides was not given. There was failure to obtain results after the pathologic condition was well established. The case proves the wisdom of making smears and cultures early when colon infection is suspected.

30 North Michigan Avenue.

A CASE OF BILATERAL TUBAL PREGNANCY

WILL H. PAYNE, M.D., YALE, OKLA.

A woman, aged 26, American, housewife, had had two pregnancies, both of which were forceps deliveries. Following the last one she was sick in bed for three months with sepsis, and during this time the abdomen was tender up to the umbilicus. She had menstruated in June and July, 1923, but failed to menstruate in August. August 1, she began to have pains and cramps in the lower pelvis, so severe that she had to go to bed, and there remained until her operation, six weeks later. Five days later she began to vomit, and the vomiting, together with the pains, continued.

August 9, or nine days after the sickness began, the patient had a severe sharp pain in the left side which radiated to the right. Following this pain, she fainted. She began to have metrorrhagia, composed of small quantities of clotted blood, which continued for six weeks. She received from one to two doses of morphin daily, and ice bags were applied to the lower pelvis.

August 17, she was seen by me in consultation with Dr. McFarland of Cleveland, Okla., when a diagnosis was made of ectopic pregnancy. A vaginal examination revealed that the uterus was retroverted, fixed and adherent. There was tumor mass clear across the abdomen, about the size of an orange, which was more pronounced on the left side. Cullen's sign, a bluish discoloration around the navel, was present. August 18, operation revealed a ruptured ectopic right and intact left tube; the pregnancy was of about two months' duration.

On account of the condition of the patient the old adhesions of the uterus were not disturbed. The uterus and intestines were a mass of inflammation. The uterus was not curetted at this time, but dilation and curettage were performed four days later and the débris removed from the uterus. The patient made an uneventful recovery, and was walking around the hospital on the tenth day, and returned to her home in good condition on the fifteenth day after operation.

DIABETIC CATARACT IN A CHILD

SOLOMON STROUSE, M.D., AND HARRY GRADLE, M.D., CHICAGO

Although the occurrence of cataract in diabetes in older persons is by no means uncommon, the disease in children usually ends in death before trophic disturbances are produced. We have been able to find two cases reported. One was by Sherrill,[1] occurring in a boy, aged 15, who had a severe diabetes of about one and a half years' duration and who showed bilateral cataract. Operation restored vision to normal, although the patient died two years later of the diabetes. Joslin[2] reports a case of bilateral cataract in a girl 12, discovered five months after the onset of the disease.

REPORT OF CASE

E. H., a girl, aged 10 years, who entered the Michael Reese Hospital, May 19, 1922, had the usual symptoms of diabetes (loss of weight, increased thirst, increased appetite, polyuria, malaise and irritability). Onset was one year before, and within one month of the onset, sugar was found in the urine. Treatment instituted at that time did not clear up the glycosuria, which apparently persisted until three weeks before admission. During the three weeks she was made sugar-free and was much improved subjectively.

The past and family history were unimportant. There was no diabetes in the family. The physical examination at this time was negative. The patient was in the hospital until May 30, at which time she was discharged on a diet of protein, 25; fat, 85, and carbohydrate, 25. The blood sugar was 140 mg. per hundred cubic centimeters of blood, and the urine was free of pathologic constituents.

For five months after discharge from the hospital the patient remained sugar-free and felt very well. She returned to the hospital, June 25, 1923, having again all the symptoms complained of at her first admission. At this time examination showed the presence of the cataract. The urine contained sugar, acetone and diacetic acid; the blood sugar was 300 mg. per hundred cubic centimeters of blood; the carbon dioxid combining power was 58.8; the Wassermann test was negative.

Insulin and dietary procedures were started immediately after a test diet of protein, 50; fat, 50, carbohydrate, 50; calories, 850, had produced a urine containing 57 gm. of sugar, acetone and diacetic acid. By July 17, her diet was protein, 50; fat, 120, and carbohydrate, 45, and she was receiving 15 units of insulin in the morning and 20 units in the evening. She was sugar-free on this combination. July 11, the blood sugar was 173, and July 21, 120 mg. per hundred cubic centimeters of blood. It was evident that we were dealing with a case of severe juvenile diabetes.

The eyes were first examined, June 29, when a rapidly progressive cataract was found. The right eye was externally normal and with good pupillary reaction. The lens was swollen and more or less uniformly opaque, so that fundus details were not discernible. Light perception and projection

1. Sherrill, J. W.: Clinical Observations Concerning Progressiveness of Diabetes, J. Metabol. Res. 1: 667 (May) 1922.
2. Joslin, E. P.: Treatment of Diabetes Mellitus, Ed. 3, 1923.

were normal. The left eye showed incipient peripheral striae in the lens, which were waterlogged and of the progressive type. The remainder of the eye was normal. July 24, the patient was considered ready for operation. Under good local anesthesia, a typical Ziegler V-shaped discission of the right lens was performed. Atropin was instilled and the eye bandaged. There was not very much reaction, although the disturbed lens cortex bulged well forward into the anterior chamber. Ethylmorphin hydrochlorid was used at intervals, but no further medication was attempted. She then left the city and was referred for her eye condition to Dr. Walter Parker of Detroit, who reported that, November 5, her right vision with a + 12.00 s. + 2.50 cyl. ax. 90 was 6/6. Dr. Parker reported that the absorption was complete in the pupillary space, although there was a rather dense secondary just outside the normal pupillary area; the result was perfect; the ophthalmoscopic examination was noted as negative.

Since the patient left the hospital she has been receiving insulin under dietary control, and has remained in good general condition. She goes to school and is steadily gaining in weight and strength. Occasionally the urine shows sugar, which is easily dissipated by shifting the diet or the insulin.

104 South Michigan Avenue—22 East Washington Street.

CASE OF CAROTINEMIA *

F. W. NIEHAUS, M.D., OMAHA

Mrs. H. H., aged 25, a housewife, entered University Hospital, June 9, 1923, complaining of weakness, thirst and marked appetite. The trouble began two years before, two months preceding the birth of her baby. The urine at that time showed a marked amount of sugar. On a moderately restricted carbohydrate diet, the patient remained sugar free until December, 1922, when she again showed sugar, and all the previous symptoms recurred, much aggravated. In two months she had lost 40 pounds (18 kg.). A physician prescribed a vegetable diet containing a high carrot content. About a month later her hands became yellow, which color was present when she entered the hospital.

The patient was markedly undernourished. There was a distinct yellow discoloration of the hands, feet and nasolabial folds. There was no pigmentation of the sclerae. At the University Hospital she was taken off the restricted diet and was given insulin treatment. Carrots were removed from the diet at the same time. A sample of blood serum taken at this time showed a distinct yellow discoloration as compared with normal blood serum. After a few days of treatment, the urine became sugar free and the blood sugar fell from 0.37 to 0.12 per cent., and she gained 5 pounds (2.3 kg.). At the end of two weeks, there was a perceptible fading of the pigmentation of the hands and feet. A specimen of blood serum was pale orange. This specimen was compared with a chromic acid standard. A liberal allowance of carrots was then added to the diet. At the end of two weeks the yellow discoloration became more marked on the hands and feet, and the blood taken at this time had a serum nearly orange, having 38 per cent. more yellow coloring matter than the serum taken while the patient was on a carrot-free diet. The comparisons were made with a Duboscq colorimeter, a 2 per cent. chromic acid solution being used as a standard. With the standard set at 30 on the colorimeter, the first specimen gave a reading of 17.5, equivalent to a 3.42 per cent. chromic acid solution. The second specimen gave a reading of 12.7, equivalent to a 4.72 per cent. chromic acid solution.

After being on a heavy carrot diet for two weeks, the patient was placed on a more or less general diet consisting of carrots only occasionally. Blood serum was taken one month later, August 8, and comparisons made against a standard 2 per cent. chromic acid solution showed it to be equivalent to a 2.73 per cent. solution, or 42 per cent. less coloring matter than that taken after a high carrot diet, but still containing considerably more coloring matter than normal serum. Yellow discoloration of the hands and feet was still present to a slight degree, but not nearly so marked as before. The yellow tinge at the angles of the mouth was gone, and the sclerae were free from color. She was dismissed from the hospital, August 10, on a diet of 2,500 calories and 60 units of insulin, with a weight increase of 15 pounds (6.8 kg.), acetone and sugar free.

World-Herald Building.

* From the Medical Service, University of Nebraska Hospital.

A SIMPLE METHOD FOR THE DETERMINATION OF PHENOLTETRACHLORPHTHALEIN IN BLOOD SERUM *

WILLIAM BLOOM, M.D., AND WILLIAM H. ROSENAU, M.D.,
CHICAGO

The clinical determination of hepatic function by means of phenoltetrachlorphthalein was first proposed by Rowntree, Hurwitz and Bloomfield. Rosenthal[1] improved the technic of the test by injecting the dye intravenously and examining the blood serum after from fifteen to sixty minutes for its dye content. The technic he employed entailed the addition of several drops of 5 per cent. sodium hydroxid to the serum, and the comparison of the test specimen with known concentrations of the dye. He found retention of phenoltetrachlorphthalein in the blood serum of both patients and experimental animals in which there was severe damage to the liver.

We have made use of Rosenthal's technic in a clinical and experimental study of liver function. These results are to be published elsewhere. In carrying out the test, not infrequently specimens were found in which the presence of slight amounts of hemolysis, lipemia and icteric serum greatly interfered with the colorimetric reading or recognition of small quantities of the dye. We have tried the effects of various organic solvents and precipitants on serum that contained phenoltetrachlorphthalein, in an attempt to find some reagent by means of which we could separate the dye from the serum. We noted that the addition of 1 c.c. of acetone to 1 c.c. of the test serum causes a heavy, white flocculent precipitate; when this is centrifugated for two minutes at low speed, an almost crystal clear, slightly yellowish, supernatant liquid separates from the precipitate. This supernatant liquid does not give a biuret reaction. If the phenoltetrachlorphthalein is present in the test serum, it will remain colorimetrically quantitatively in the supernatant liquid. The addition of three drops of 5 per cent. sodium hydroxid to this liquid causes the phenoltetrachlorphthalein to appear with slightly more of a bluish tint than is present when the dye is in aqueous solution. A permanent standard for comparison with the test specimen can be made up in a manner similar to the method of Rosenthal, except that the color standard for each percentage dilution of the dye is diluted with an equal volume of acetone so as to compensate for the addition of acetone to the test specimen. The acetone standards begin to fade slightly after a month.

This method enables us to detect minute traces of the dye, and, because of the sharp color elicited from the serums by this technic, very accurate quantitative determinations can be made. Even the serums from heavily jaundiced patients give the same clear supernatant liquid; in these cases the precipitate is colored deep yellow, while the supernatant liquid does not give a color reaction when treated with Ehrlich's diazoreagent (Van den Bergh test).

A simple method is here proposed for the quantitative determination of phenoltetrachlorphthalein in blood serum. This method eliminates most of the difficulties attendant on the performance of the phenoltetrachlorphthalein test for hepatic function.

* From the Snydacker Fund and the Otto Baer Fund for Clinical Research of the Michael Reese Hospital and the Nelson Morris Memorial Institute for Medical Research.

1. Rosenthal, S. M.: A New Method of Testing Liver Function with Phenoltetrachlorphthalein, Proc. Soc. Exper. Biol. & Med. **21**:23 (Nov.) 1923.

Tuberculosis in Rural Districts.—Tuberculosis stands third as a cause of mortality in the United States, yet there are many rural communities in which little or nothing is being done to combat this disease. Surely a campaign directed toward its control and eradication should be most welcome. —Draper, W. S.: *Pub. Health Rep.* **38**:2716 (Nov. 16) 1923.

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SATURDAY, FEBRUARY 16, 1924

THE BACTERIAL ASPECTS OF DIRTY MONEY

"The emphasis for living finely and well," says Williams,[1] "is always to be placed upon the ways and means of attaining and maintaining health." The discovery of bacteria as a prominent cause of disease seemed to simplify the problem of eradicating menaces to health. It presented the scientific basis for a system of hygiene; and, as we have recently been reminded,[2] if there is anything the normal American loves, it is "system." It offers something seemingly concrete and direct to deal with, so that the acceptance of all manner of systems to preserve human health by what are said to be intelligent persons is in part based on the fact that, while the projects may be more or less fallacious, they are essentially simple. Despite the ubiquity of bacteria, they do not represent the only dangers to the health of mankind, yet they are often sufficiently menacing to call for a constant warfare of defense against them.

In the earlier days of the campaign against harmful germs, much attention was directed to objects that might carry them. Infectious material on objects may undoubtedly be transmitted to a well person. They are now held to be less dangerous, and of late the human carrier has attained far greater prominence than is accorded to inanimate objects. At the end of the last century, when the cry of "dangerous dirts" was still loudly uttered, dirty money came in for its share of condemnation. The warnings of "clean money Morrison," that dangerous disease may lurk in our paper money, were widely quoted in the public press. The bacteriologic investigations of Hilditch, however, failed to produce evidence of any abundant distribution of micro-organisms on even the dirtiest of paper currency. Somehow there seemed to be something in the composition of the printed bill that acted unfavorably to bacterial life. Perhaps this explains why bank tellers and others who spend many of their waking hours in contact with soiled money are not thereby consigned to sickness and an early grave. Dirt and danger are not always synonymous in the domain of hygiene.

The flood of paper money that has inundated central Europe has directed attention anew to this much used medium of exchange as a carrier of disease. Investigations by Kiefer [3] in Bonn indicate that "hard use" is no index of the degree of bacterial contamination of paper bills. Mark notes in ordinary commerce may carry widely varying numbers of viable germs, though the total number is not strikingly large; indeed, it is usually far smaller than that found in a teaspoonful of market milk of good quality. The viability of a variety of pathogenic organisms on German paper money was found to be preserved for long periods in many instances. This contrast with earlier findings on our own currency may be due to the cheaper modes of manufacture and a lowered bactericidal property for reasons that demand further study. The reported inherent germ-destroying qualities of our paper currency, whether due to the inks used or to some other component of the bills, ought to be determined. In any event, metallic money is far less contaminated with viable bacteria. The smaller surfaces of coins are less exposed to dust particles; but the foremost reason for their freedom from living micro-organisms lies in the germicidal action of the metals, a property long known to biologists. Consequently, it is to be inferred that, from a hygienic standpoint at least, a dirty copper penny may be more acceptable than a clean ten dollar bill.

GASTRIC SECRETORY FUNCTIONS IN PSYCHOSES

The expectation that there should be some correlation between mental and bodily functions will probably be admitted as a reasonable consequence of what is known about psychic influences on the organism. This applies in particular to the secretions and to muscle tonus, which appears to be susceptible in various ways to changing mental states. Whether metabolism and nutrition can be modified thereby is not yet evident. The alimentary secretory apparatus, in particular, has been supposed to be especially susceptible to changes in mental states, the alleged responses representing inhibition in some cases and stimulation in others. Thus, Farr and Lueders [4] come to the conclusion, from a study of the works on psychiatry, that gastric and other secretions are generally assumed to be diminished in depressed or melancholic states, and increased in excited or manic states. Less definite statements are made in regard to dementia praecox.

In evaluating the older evidence, one cannot avoid Carlson's conclusion [5] that there is no disease known

1. Williams, J. F.: Personal Hygiene Applied, Philadelphia, W. B. Saunders Company, 1922.
2. Fishbein, Morris: Osteopathy, Am. Mercury **1**: 190 (Feb.) 1924.
3. Kiefer, H. H.: Bakteriologische Untersuchungen über Papiergeld, Arch. f. Hyg. **92**: 227, 1923.
4. Farr, C. B., and Lueders, C. W.: Gastric Secretory Functions in the Psychoses, Arch. Neurol. & Psychiat. **10**: 548 (Nov.) 1923.
5. Carlson, A. J.: The Secretion of Gastric Juice in Health and Disease, Physiol. Rev. **3**: 1 (Jan.) 1923.

capable of inducing true gastric hyperacidity. The pathologic deviations in acid and pepsin concentrations are invariably in the direction of a decrease. Carlson also doubts whether essential hypersecretion ever exists. He has pointed out that the factors definitely known to induce hypersecretion are delayed gastric evacuation resulting from obstruction at the pylorus or gastric stasis due to factors that do not at the same time depress the gastric glands. The hypersecretion that is frequently seen in certain so-called nervous disorders has not been sufficiently studied in regard to gastrointestinal motility. If this hypersecretion is primarily of nervous origin, it may be due to depression of the inhibitory secretion tonus quite as much as to excess activity of the appetite nervous mechanism.

Farr and Lueders [4] have lately concluded, from observations at the Pennsylvania Hospital, that although somatic and hypochondriacal delusions bear no evident relation to secretory variation, depressing emotions appear to exert an inhibiting effect on gastric and even on duodenal secretions. Motility is less clearly influenced. Perhaps such disturbances in alimentary conditions will help to explain the malnutrition in cases of prolonged depression, the upset in the nutrition being a secondary effect rather than a cause of the altered gastric secretion. It would be unwise in the present state of our knowledge, however, to forget the wide variations in the gastric secretion of healthy persons. The clinician, Carlson has reminded us, must take cognizance of the fact that hypersecretion and clinical hyperacidity as well as hypo-acidity and anacidity are not only compatible with health, but are found in a considerable percentage of normal persons. The anomalies in gastric secretion (except gastric retention) exhibited by a patient with any disease, Carlson adds, may therefore have been present in that person before the onset of the malady.

TREPHONES—GROWTH-PROMOTING SUBSTANCES

The problem of wound healing concerns essentially the regeneration and proliferation of tissue cells. If the factors involved could be discovered, the outcome might be highly important for the control of conditions that attend every sort of mechanical injury to which the body has been subjected. One recalls the search for "cicatrizing substances" that has engaged the surgeons for some time. They have inquired whether an irritant is inhibitory or, rather, advantageous for the healing process, as Virchow believed. It is conceivable that a mild irritant might lead to cell proliferation with consequent benefit, whereas a more intense irritation might, by initiating cell destruction, overbalance any advantage of the initial promotion of growth. Various dyes have been supposed to incite beneficial reactions. Some students of the subject, on the other hand, have directed their attention primarily to possible chemical factors concerned with nutritive activities.

The development of methods for the observation of the growth of pure strains of tissue cells isolated and maintained outside the organism in a conditoin of physiologic activity has given promise of promoting a better understanding of these questions. The studies, in particular, of Carrel and his associates at the Rockefeller Institute for Medical Research, New York, have made it likely that the serum in which tissues are ordinarily bathed and which might be expected to represent an ideal nutrient medium does not function in that manner. Connective tissue and epithelial cells survive for some time in plasma; but, according to Carrel, the activity displayed for a few days or weeks by fibroblasts cultivated in plasma depends necessarily on the nutrient substances stored within the tissue itself. Serum constituents are not used as a source of nitrogen by fibroblasts and epithelial cells in vitro. Therefore, plasma and serum cannot be considered as a culture medium, in the proper sense of the word, for these cells.

Carrel [1] has pointed out that fibroblasts and epithelial cells are maintained in a true state of cultivation only by embryonic tissue juices. Whenever these juices are present, the volume of the tissue begins to increase. The cells can build an unlimited amount of protoplasm from certain constituents of embryonic juice. Carrel has designated the as yet unidentified products manufactured by some cells and used by others in the construction of protoplasm by the term trephones. These differ, he suggests, from hormones, which stimulate the cells to activity without possessing any nutrient property; but both trephones and hormones may be required for the growth of tissues.

It is a noteworthy finding that these growth-promoting substances, or trephones, are liberated by leukocytes not only in vitro but also in vivo. Heretofore, interest in these migrating blood cells has centered largely in their phagocytic power and the consequent benefits to the organism. Carrel has made the pertinent suggestion that perhaps the growth-promoting properties of leukocytes are utilized by the diseased organism as fully as is their power of opposing bacteria and other foreign substances. It is also conceivable that an inflammatory irritant may initiate cicatrization, not directly, but by the intermediary of the leukocytes. Leukocytic trephones may supply the food material required for the production of new cells which is not obtainable from the blood plasma of an adult. Thus, the irritant does not act by itself but causes the embryonic reserves of the organism to be brought to the wound in the form of leukocytes. These newer conceptions ought to awaken speculation that is likely to bring abundant rewards in the direction of a far better understanding of the obscure problem of wound repair. One need scarcely add that also the mechanism of growth in general, not only of normal but also of pathologic cell masses, is related to the same factors.

1. Carrel, Alexis: Leukocytic Trephones, J. A. M. A. **82**: 255 (Jan. 26) 1924; Artificial Activation of the Growth in Vitro of Connective Tissue, J. Exper. Med. **17**: 14 (Jan.) 1913.

THE FORMATION OF HIPPURIC ACID

When benzoic acid or its salts are ingested, they are excreted again by the kidney in combination with the amino-acid glycin (glycocoll), being eliminated in the form of the familiar urinary constituent hippuric acid or benzoyl glycin. Within recent years a test for renal function has been proposed, based on the ability of the kidneys to excrete this substance.[1] Sodium benzoate, in doses of 2.4 gm., is completely synthesized in man into hippuric acid and eliminated as such even in individuals whose kidneys have been demonstrated to have been damaged extensively. In the renal test the ability of the kidneys to eliminate hippuric acid at the usual definite and rapid rate is made the criterion of function. The procedure assumes that glycin will always be available somehow in the organism; otherwise difficulties will obviously be interposed in the consummation of the synthesis of its benzoyl derivative.

It has been emphasized by studies of Griffith and Lewis [2] that in animals the rate of excretion of hippuric acid may be decidedly increased by the administration of glycin along with the benzoate. This increase probably represents an increased rate of synthesis of hippuric acid due to the presence of large amounts of preformed glycin in the organism. They also found that a number of other amino-acids, notably alanin, cystin, leucin and aspartic acid, which may arise from proteins through digestion, did not produce the same effect; hence it was considered improbable that any of these substances is a readily available precursor of glycin. These investigations make it evident that the success of the hippuric acid synthesis test may depend in part on having an adequate supply of preformed glycin readily available in the organism when the benzoate is administered. Kingsbury,[3] who devised the hippuric acid test, has himself reported that, in certain human cases with a low rate of elimination of hippuric acid after benzoate ingestion, the rate of hippuric acid excretion was notably accelerated by the ingestion of glycin in amounts equivalent to the benzoate fed.

Griffith and Lewis [4] have thrown additional light on the subject by the recent demonstration that the rate of synthesis of hippuric acid after ingestion of benzoates can be markedly increased by administration of those proteins which furnish a high yield of glycin, whereas those which have a low preformed content of this amino-acid do not effect such a result. It is improbable, therefore, that the ordinary reactions of general protein metabolism produce readily available precursors of glycin. In this connection it is perhaps well to realize that aromatic compounds other than benzoates can promote the production of hippuric acid. It is generally understood that most of the various organic acids, such as citric and malic acids, present in the common fruits, are completely oxidized within the body. Prunes, plums and cranberries are an exception to this rule. These fruits contain benzoic acid and some other substances, from which the body forms hippuric acid, which is eliminated in the urine. Blatherwick and Long [5] have found, however, that the greater part of this cannot be accounted for by the limited amount of benzoic acid in prunes and cranberries. Hence one must look elsewhere for the chief precursors of hippuric acid in these fruits. Quinic acid is the most probable compound concerned in this synthesis.

1. Kingsbury, F. B., and Swanson, W. W.: The Synthesis and Elimination of Hippuric Acid in Nephritis: A New Renal Function Test, Arch. Int. Med. **28**: 220 (Aug.) 1921.

2. Griffith, W. H., and Lewis, H. B.: Studies in the Synthesis of Hippuric Acid in the Animal Organism, V, The Influence of Amino-Acids and Related Substances on the Synthesis and Rate of Elimination of Hippuric Acid After the Administration of Benzoate, J. Biol. Chem. **57**: 1 (Aug.) 1923.

3. Kingsbury, F. B.: The Synthesis and Excretion of Hippuric Acid: The Glycine Factor, Proc. Soc. Exper. Biol. & Med. **20**: 405, 1922-1923.

4. Griffith, W. H., and Lewis, H. B.: Studies in the Synthesis of Hippuric Acid in the Animal Organism, VI, The Influence of the Protein of the Diet on the Synthesis and Rate of Elimination of Hippuric Acid After the Administration of Benzoates, J. Biol. Chem. **57**: 607 (Oct.) 1923.

MINERS' NYSTAGMUS

The administration of a workmen's compensation law is dependent, in no small measure, on the integrity of the medical examiner, and requires not only sound medical knowledge but also an intimate acquaintance with human psychology. An accident in the course of employment is quickly recognized, yet compensation for the trauma in some cases has not been so easily adjusted. When the law includes occupational diseases, much greater difficulty arises; for the cause of the injury is often debatable, and may be confused by contradictory medical testimony. Even when the disease is directly related to the occupation, the administration of the compensation law covering it has often resulted in marked violation of its intention, and has not been an unmixed blessing to the sufferer. A particular example of this difficulty of administration is presented in the second report of the Miners' Nystagmus Committee, recently published by the British National Research Committee. Here there is no difficulty in associating the disability with the occupation, for miners' nystagmus is confined to coal miners and to iron stone miners, who, on account of the presence of thin coal seams, have to use safety lamps, and therefore work in badly illuminated areas. In England it is classed as an occupational disease, and the sufferers have definite claims under the Workmen's Compensation Act. Recently, the secretary of mines called the attention of the committee to the large and ever increasing number who claim and obtain compensation, many for long periods. The interest of the report lies in the outline presented of the causes that have led to this increase and to the abuse of the present law.

Miners' nystagmus consists in the rapid oscillations of the eyes, pendular in character, showing no quick and slow phase as in labyrinthine nystagmus, from which it differs also in other respects. Most frequently,

5. Blatherwick, N. R., and Long, M. L.: Studies of Urinary Acidity, II, The Increased Acidity Produced by Eating Prunes and Cranberries, J. Biol. Chem. **57**: 815 (Oct.) 1923.

the oscillations have a rotary character, but horizontal movements are not infrequent, and vertical movements have been described. Though they are usually binocular, in a few cases only one eye may be affected. The position of the eyes has a great effect on the oscillations. These are most marked if the patient looks up, and in slight cases can be seen only on upward movement of the eyes. Fixation always increases the oscillations. Associated, there may be blepharospasms and trembling of the head. There is defective adaptation of the retina to light, so that if the miner comes into a bright light he is confused and blinded. The subjective sensations most complained of are movements of objects and vertigo traceable to the disordered eye movements.. Frequently, other symptoms are complained of, such as general tremor, great mental depression and rapidity of the heart action, which have no direct relation to the disordered eye movements and which, for want of a better term, are labeled psychoneuroses.

The essential factor in the production of miners' nystagmus is deficient illumination. It is rare among coal miners working with open lights. The incidence of severe cases has within recent years been much diminished by improved lighting in the mines, by improved lamps, by whitewashing the roadways to the seam, and by coal dusting, now obligatory to prevent explosions. According to European statistics, about 20 per cent. of coal miners are affected in some degree, and a large proportion of underground miners, while still at work, exhibit signs of nystagmus but are not incapacitated by it. The incidence of severe cases is said to be from 0.05 per cent. in good pits to 0.3 per cent. in bad pits. It is generally recognized that oscillations of the eyes do not necessarily cause incapacity. Congenital forms, unless accompanied by other disabilities, such as albinism or cataract, rarely cause incapacity. Children so affected usually do well at school, and adults are quite unconscious of the movements of the eyes and do not appear to be handicapped in their working abilities.

On the continent of Europe, oscillation of the eyes is essential to the consideration of any claim for indemnity for this disease. The presence of nystagmus does not entitle a miner to compensation, but in severe cases the medical referee can recommend an indemnity, which is paid only for six months. Incapacity is measured by the ophthalmic surgeon from the ease with which oscillations are manifest relative to the visual axis and the persistence with which they are maintained. In Belgium and France, the incidence of compensation for many years has remained around 0.2 per cent. in some districts and 0.03 per cent. in others. In Germany, the incidence of claims was 0.3 per cent. from 1905 to 1913. In the latter year it was decided that only the severely affected were entitled to compensation and the percentage fell to 0.18 per cent.; since the war it has fallen to 0.03 per cent. In the United States there is no law governing compensation, and little is heard of miners' nystagmus or of incapacity due to it. The mines are generally well lighted with acetylene lamps or electric cap lamps.

In England, under the act, nystagmus may furnish a legitimate ground for compensation even if the overt symptoms are comparatively slight, and compensation can be claimed "whether the symptoms of oscillation be present or not." This wording has resulted in such a wide interpretation as to include cases in which the psychologic elements largely predominate, and to these the increase for compensation claims is due: from 406 in 1908, to 8,810 in 1922; in terms of men working, from one in 1,702 in 1908 to one in 106 in 1922.

Within the meaning of the English Workmen's Compensation Act, a man is disabled unless he can earn full wages at the work at which he is employed. If, under medical advice, the miner has to accept work above ground at a lower wage, he is, in the words of the act, disabled from earning full wages. Termination of the duration of incapacity results from the man's voluntarily returning to work by mutual agreement or by arbitration. Miners have drawn compensation who are incapacitated by such conditions as melancholia, general paralysis of the insane, valvular disease of the heart, hemiplegia, paralysis agitans, bronchitis and an injured knee. These men had been able to work, notwithstanding the oscillation of their eyes, until the other troubles appeared.

The sequence is often as follows: A man is certified to be incapacitated by miners' nystagmus. His employer calls in the insurance company to pay the compensation. The medical officer of the insurance company may suggest that the man is able to do surface work, and the employer is asked to furnish this. But the employer, from past experience, knows that these men do not make good surface laborers, and accordingly cannot find work for them. The man therefore stays at home for an indefinite period, drawing his indemnity allowance, and by the time the nystagmus disappears he has physically deteriorated and is of less value in the labor market. Should he desire to work after a long period, particularly if over 50, he will find no employer willing to engage him, the employer fearing that there may be a slight return of the trouble and a claim for compensation. The indemnity companies are thus obliged to pay compensation for a long period; to meet this they charge a high premium to the employer, who increases the price of coal, and so the consumer pays.

After careful consideration of the records for compensation claims in other countries and in England, and of the factors that have been at work influencing these claims, the committee has concluded that while there is no evidence of any increase in the percentage of miners affected by miners' nystagmus, there has been a very

marked increase in the number of fresh claims for compensation and in the duration of the incapacity claimed, while no corresponding increase has taken place in other countries. The report therefore recommends that the act as it at present stands should be altered so that miners should be considered to have nystagmus sufficiently severe to be certified for compensation only if oscillation of the eyes is constantly present even when the miner is looking at or below the horizontal level in daylight, or if it persists for five minutes in a good light with the eyes at the horizontal level after it has been induced by the darkening of the room and by suitable exercises.

Current Comment

FROZEN TOXIN-ANTITOXIN

During the first week in February, students in two Massachusetts institutions were inoculated with toxin-antitoxin, and thereafter forty-four suffered severe local and constitutional reactions. As is reported in the correspondence columns in this issue of THE JOURNAL, subsequent investigations revealed the fact that the serums used had been subjected to extremely low temperatures, and later thawed before injection. Because of the untoward effects that resulted, the authorities called on Drs. Bela Schick, William H. Park, M. J. Rosenau and Hans Zinsser, and Dr. George W. McCoy and other representatives of the United States Public Health Service, to investigate the matter. The work done in this connection has brought to light new facts regarding the toxin-antitoxin combination, namely, that freezing dissociates the combination and that a lesser dosage of toxin may be efficient. As might have been expected, the fanatical elements which constantly agitate against the application of the facts of scientific medicine to the prevention of disease seized this incident, and endeavored to exploit it to the utmost. Their efforts should not, however, cause any one to be deterred from the use of the toxin-antitoxin method for the prevention of diphtheria. Almost a million inoculations in New York without the slightest distress, and hundreds of thousands elsewhere in the United States, should be sufficient evidence as to the safety of the method and as to its great desirability.

"KILLED BY VACCINATION"

The caption of this comment is the title of an article appearing in that haven of medical quackery and fantastic quasi-medical fads, *Physical Culture*. The article is by Simon Louis Katzoff of Bridgeport, Conn., who, according to *Physical Culture*, is a "graduate in law, pharmacy and medicine, a prominent physician, psychologist and author." The article opens with a typical piece of "sob stuff." According to Katzoff, one of the most beautiful children he had ever known was vaccinated and some time thereafter (no names, dates or figures of any sort) gradually faded away, "grew rapidly weaker and weaker—and died." The death certificate showed that this child died of pneumonia, but Katzoff knows better; she died by vaccination! And this is not the only instance Katzoff knows of in which deaths have followed vaccination; he knows "plenty of them." So much for the "heart interest" element of Katzoff's article. The rest of it is merely a rehash of the antivaccination propaganda that has been put forward for years by the professional anti-vaccinationists and quacks who think they can help their own schemes by discrediting scientific medicine. Simon Louis Katzoff, readers of THE JOURNAL will remember, is the "First Vice-President and Chairman of the Council on Health and Public Instruction" of that egregious organization, the "American Progressive Medical Association," whose unsavory ménage was dealt with in the Propaganda department, December 15 last. Katzoff was born in Russia in 1890, and holds a diploma from the Georgia College of Eclectic Medicine and Surgery. He also holds a license from the Eclectic Board of Georgia and from the Eclectic Board of Connecticut. What a license from the Eclectic Board of Connecticut means, the medical profession and the public are gradually finding out. Katzoff is recently reported in the newspapers to have been called before the Special Grand Jury that is investigating the diploma mill scandal that smells to heaven. It would be interesting to learn what schools graduated Katzoff in law and pharmacy. To call Simon Louis Katzoff a "prominent physician, psychologist and author" is to play tricks with the English language. The man is unknown to scientific medicine except in unsavory connections. His tirade is worthy of notice only because faddists of the type that read *Physical Culture* form numerically an important portion of our population.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Surg. Gen. Hugh S. Cumming, U. S. Public Health Service, Washington, D. C., gave an address at the Tuskegee Institute at the observance there of negro health day.

John Andrew Clinical Society.—The thirteenth annual clinic and the sixth annual meeting of the John Andrew Clinical Society will be held at the John A. Andrew Memorial Hospital, Tuskegee Institute, March 31-April 5, under the presidency of Dr. George N. Woodward, Fort Valley, Ga. Dr. Frederick R. Green, former secretary, Council on Health and Public Instruction, American Medical Association, Chicago; Dr. Algernon B. Jackson, director, School of Hygiene and Public Health, Howard University, Washington, D. C.; Dr. Henry M. Minton, Philadelphia, and Dr. Charles C. Cater, Jr., Atlanta, Ga., among others, will speak.

CALIFORNIA

Twenty Licenses Investigated.—The licenses of twenty Los Angeles physicians, and a supposedly defunct medical college known as the Pacific Medical College, are being investigated by the state board of medical examiners. All of these men have come to California from Missouri since 1918, during the period of activity of the diploma mill ring.

Record Number of Licenses Granted.—More applications for licenses to practice medicine in California were received

during 1923 than in any previous years. According to the secretary of the state board of medical examiners, 783 physicians were granted licenses and 910 made application; 492 of those licensed came from other states, and only forty-one physicians left California during the year.

Another Investigation.—A joint committee of the California State Chiropractic Society and the American Association of Drugless Physicians recently investigated more than 1,500 applications for chiropractic licenses in the state. It is reported that the committee found that 75 per cent. of the applications were based on fraud; that bricklayers, pedlers, soda fountain clerks and artisans of every trade have gone in for chiropractic and had received licenses in many cases, and that many have diplomas from "schools" that give little or no instruction.

COLORADO

Society News.—At a meeting of the Denver City and County Medical Society, February 5, Dr. George E. Brown of the Mayo Clinic, Rochester, Minn., delivered a lecture on "Proposed Classification and New Nomenclature for Blood Volume States and a Summary of Studies of the Different Edemas."——The first of the series of popular Sunday night lectures instituted by the society and held under the auspices of the bureau of health took place, January 27.

CONNECTICUT

Diploma Inquiry Continued.—A renewal of the investigation of quack doctors by the special grand jury started, January 28. In the witness stand was Harry Thompson Brundidge, the St. Louis reporter, who showed copies of official Connecticut eclectic medical examinations sold in St. Louis. Dr. John K. Scudder, Cincinnati, secretary of the National Eclectic Medical Association, gave testimony, as did Dr. Ralph L. White, New Canaan, a member of the state eclectic examining board, who has been mentioned as involved in coaching candidates for the eclectic examinations for licenses in Connecticut. Revocation of the license of Dr. Henry W. Nungasser, East Hartford, who was recently convicted of criminal malpractice and imprisoned, has been asked by the state medical society. He is the first regular physician whose license has been questioned during the investigation. According to reports on January 31, the grand jury asked for the revocation of licenses of 128 more eclectic physicians, making a total of 175. All of these men are said to be graduates of the St. Louis College of Physicians and Surgeons, the Kansas City College of Medicine or the Middlesex College of Medicine and Surgery, Boston. The names received to date are as follows:

Bagby, Roland O., Kansas City
Beard, C. A., Bridgeport, Conn.
Beeby, C. B. Kansas City, Mo.
Bockman, James, New York
Bodek, M. W., Los Angeles
Bond, A. B., New Haven, Conn.
Boone, R. F. C., Kansas City, Mo.
Bruce, J. W., Kansas City, Mo.
Burstan, L. L., Bridgeport, Conn.
Bush, A. P. New Britain, Conn.
Bush, J. W., New Britain, Conn.
Carlson, E. J., Pittsburg, Kan.
Carmody, W. C., Kansas City, Mo.
Cohn, A. R., Philadelphia
Cotner, J. S., Stratford, Conn.
Covey, R. E., Kansas City, Mo.
Daly, P. S. Bridgeport, Conn.
Daniel, A. I., Kansas City, Mo.
Degetatni, F. M., New Haven, Conn.
Ellis, C. B., Kansas City, Mo.
Feldman, Max, Chicago
Finaldi, Ralph, Waterbury, Conn.
Fitzgerald, L. M., Kansas City, Mo.
Fleischman, M. H., Kansas City, Mo.
Flynn, J. J., Kansas City, Mo.
Galbreath, W. O., Bridgeport, Conn.
Goodwin, A. J., Kensington, Conn.
Guild, W. A., Des Moines
Hedge, M. O., Boston
Hobbs, A. G., New Haven, Conn.
Hopper, E. P., Bridgeport, Conn.
Horton, R. B. Kansas City, Mo.
Huber, L. E., Moberly, Mo.
Hull, E. M., St. Louis
Jarco, L. W., Moberly, Mo.
Jormens, Sigurd, Chicago
Kelso, James, Portsmouth, Ohio
Kesten, E. A., Chicago
Koutsoumpas, W. V., St. Louis
Kram, Elias, Kansas City, Mo.
Lape, E. A., Maywood, Ill.
Leondides, D. J. C., New Haven, Conn.
Leven, A. S., Los Angeles
Matzio, P. V., New Haven, Conn.
McClure, J. H., New Haven, Conn.
McIver, J. M., Philadelphia
McNary, E. W., New Haven, Conn.
Miller, G. H., Kansas City, Mo.
Osborne, Horatius, Milford, Kan.
Perri, Nicholas, Chicago
Pinkerton, H. W. Bridgeport, Conn.
Pyrtle, A. H., St. Louis
Quoshizak, K. J., Houston, Texas
Rankin, C. P., New Haven, Conn.
Richardson, J. W., Waterbury, Conn.
Robinson, M. V., Chicago
Salas, A. M., Waterbury, Conn.
Schiresen, H. J., Chicago
Schirmer, J. S., Urbanette, Ark.
Sharp, B. W., Kansas City, Mo.
Shenton, A. W., Norwalk, Conn.
Simmons, R. H., Kansas City, Mo.
Sprick, E. A. C., St. Louis
Steward, C. M., Kansas City, Mo.
Teubel, E. C., Bridgeport, Conn.
Thomas, B. J., Fall Village, Conn.
Tupper, G. W., Southampton, Pa.
Van Halteren, G. V., Ft. Worth, Texas
Von Sassenhofen, A. C. H., New Haven, Conn.
Warden, L. M., Huntington, Ark.
Wesson, P. D. New Haven, Conn.
White, I. A., St. Louis

DISTRICT OF COLUMBIA

Personal.—Dr. Joseph W. Peabody, superintendent of the Tuberculosis Hospital of the District of Columbia, Washington, has been appointed assistant professor of clinical medicine, Georgetown University, Washington. Dr. Peabody will remain in charge of the tuberculosis hospital and as medical director of the board of health tuberculosis dispensary.——Prof. Harry H. Laughlin, eugenics expert for the Commission on Immigration and Naturalization, Washington, D. C., delivered a lecture on "Eugenics in the United States" before the British Eugenics Education Society in London, January 29.

IDAHO

Hospital Purchased.—Dr. David H. Lewis, Spokane, Washington, has purchased the Prindle Hospital, Spirit Lake. Dr. Lewis who will remain in Spokane will be a consulting physician to the Idaho institution, and Dr. Ralph G. Nelson, Troy, will be the resident physician at the hospital.

ILLINOIS

Outbreak of Scarlet Fever.—Twelve cases of scarlet fever were reported from the village of Riverton last week. The state department of public health has reported an average incidence in the state of 350 cases per week recently as compared with an average of 250 cases weekly during December, and the early part of January.

Crippled Children's Society Opens Medical Headquarters.—Dr. Clarence W. East, medical director of the Illinois Crippled Children's Society, has opened offices in St. John's Hospital, Springfield, where the medical headquarters of the new organization will be. The first crippled children's clinic under the new system was conducted in Quincy, February 4.

College Receives Donation.—The creation of a chair of hygiene and physical culture at McKendree College, Lebanon, is provided for, and a bequest of more than 10 acres of land near the college is made in the will of the late Dr. Benjamin M. Hypes, St. Louis, a founder of the Marion Sims Medical College. It will be known as the Benjamin Hypes Professorship in memory of the testator's father.

Adams County Medical Society.—The *Adams County Medical Society Bulletin* will be published monthly during the winter "to help develop and foster the interests of the medical profession of Central Western Illinois and Northeastern Missouri," and to publish the proceedings of the society. Dr. Harold Swanberg, Quincy, secretary of the society, is editor. The Adams County Medical Society is 74 years old.

Chicago

Dedication of Medical Buildings.—The department of public welfare and the board of trustees of the University of Illinois announce that the new group of medical buildings will be dedicated, March 6, in the library building, at Polk and Lincoln streets.

Society for Prevention of Heart Disease.—At the annual meeting of the Chicago Society for the Prevention and Relief of Heart Disease, February 8, the following officers were reelected for the ensuing year: president, Dr. James B. Herrick; Dr. Robert B. Preble, vice president; Dr. Sidney Strauss, secretary, and Dr. Robert H. Harvey, treasurer.

Personal.—Dr. Robert H. Herbst, professor of urology at Rush Medical College, addressed the Scott County Medical Society in Davenport, Iowa, February 5.——Dr. George E. Shambaugh read a paper before the section of otology of the New York Academy of Medicine, February 8, entitled "Review of Personal Researches on the Structure of the Internal Ear."

Films for Distribution.—The Chicago Tuberculosis Institute has a number of films concerning public health which may be borrowed, free of charge. "The Gift of Life" has just been received from the state board of health; other films on themes such as prenatal care, infant welfare, child health, health examinations, tuberculosis, teeth, diphtheria and scarlet fever are ready for distribution.

Physician Sentenced.—Dr. Arthur Edgar Price, according to reports, was sentenced to one year at Fort Leavenworth, February 8; he pleaded guilty to violation of the Harrison Narcotic Law. Dr. Price was formerly instructor in clinical surgery at the College of Physicians and Surgeons of Chicago (University of Illinois Medical Department) and was a captain in the medical corps during the World War.

INDIANA

Changes in Medical Faculty.—Changes in the faculty of the Indiana University School of Medicine, Indianapolis, have been announced as follows: Drs. Cyrus W. Rutherford, John C. Daniel and Donald A. Bartley, to be assistants in the department of ophthalmology; Dr. Matthew Winters, assistant, department of pediatrics; Dr. Edward L. Lingeman,

assistant in the department of surgery of the head and neck; Dr. William F. Hughes, associate in ophthalmology, has been appointed assistant professor of ophthalmology; Dr. Charles Lawrence Gabalze, associate in surgery, will be assistant professor of surgery of the head and neck. Dr. Eugene B. Mumford has been appointed assistant professor of surgery; Dr. Maxwell A. Bahr has been appointed assistant professor of nervous and mental diseases; Dr. Carl B. Sputh, associate in ophthalmology; Dr. Larue D. Carter and Dr. Charles D. Humes, assistants in nervous and mental diseases, to be associates in mental and nervous diseases; Dr. Edwin N. Kime, instructor in anatomy and surgery, has been appointed associate in obstetrics; Dr. Ray Newcomb has been appointed associate in ophthalmology.

IOWA

Medical Legislation.—Senators Gilchrist and Holdoegoel filed a bill in the senate, January 24, which would require every applicant for a marriage license in Iowa to undergo a physical examination.——House file 92, relating to medical and surgical treatment of indigent persons, passed the house, January 14, with an additional clause giving health officers the right to compel parents of children with some malady or deformity to submit to medical treatment.

LOUISIANA

Personal.—A banquet was tendered Dr. Livingston Farrand, president of Cornell University, New York, February 4, at the Roosevelt Hotel, New Orleans, by graduates of Cornell residing in New Orleans.

Child Welfare Work.—Dr. Richard L. De Saussure of the American Child Health Association has been loaned to the Louisiana State Board of Health to assist the city of Baton Rouge in establishing a full-time health unit and child health demonstration program. The program, operating entirely under state and local forces, aims to introduce health education into the schools, to give midwives proper training, and to instruct mothers in the care of the preschool child. The state board of health has given an appropriation of $200 a month to maintain a child health clinic, and has offered the services of a nurse.

MARYLAND

Tuberculosis Clinics.—Tuberculosis clinics were conducted, February 5, in Upper Marlboro by Dr. John M. Nicklas, clinical aide of the state health department; February 6, a clinic was held in Hughesville, and in Leonardtown and Prince Frederick, February 8 and 9.

New Dispensary at Johns Hopkins.—Plans have been completed for a new dispensary for the Johns Hopkins Hospital which will cost $1,000,000. It will be a seven-story structure built on the site of the present dispensary on Monument Street. It will adjoin the new pathological building and connect it with the surgical building; $750,000 will be expended for equipment. An endowment of $1,000,000 has been provided for operating the dispensary, which now has an income of $100,000. The work of the dispensary will be continued during building operations in existing quarters as long as they are open, and the new dispensary will be constructed in units so as to cause no interruption in the operation of the dispensary.

Personal.—At the Baltimore City Medical Society meeting, February 1, Surgeon Lawrence Kolb, Hygienic Laboratory, Washington, D. C., spoke on "Some Phases of Drug Addiction"; Surgeon Edward Francis, of the Hygienic Laboratory, spoke on "Turalemia—A New Disease of Man." The discussions were opened by Drs. Adolf Meyer and William H. Welch.——A reception in honor of Dr. Esther Lovejoy, chairman of the American Women's Hospitals and president of Medical Women's International Association, was given, February 10, at the Belvedere Hotel, Baltimore.——Dr. Charles J. Hastings, department of public health, Toronto, Canada, gave a lecture on "The Economic Aspect of Public Health," February 11, before the School of Hygiene and Public Health, Johns Hopkins Hospital.

MICHIGAN

State Hospital Convention.—At the annual convention of the Michigan Hospital Association in Grand Rapids, January 24, the following officers were elected: president, Dr. Thomas R. K. Gruber, Receiving Hospital, Detroit; vice presidents, Drs. Stephen L. O'Brien, St. Mary's Hospital, Grand Rapids, Mrs. Booth, Butterworth Hospital, Grand Rapids, and Miss Rogers, Children's Hospital, Detroit, and secretary, Dr. Donald M. Morrill, University of Michigan Hospital, Ann Arbor. The next annual convention will be in Saginaw in December.

MINNESOTA

Visiting Nurses' Association.—The Visiting Nurses' Association of Minneapolis has formulated the following plan for 1924: establishment of an expert orthopedic nursing service; affiliation with industries which cannot afford an individual plant nurse; nursing in all homes having communicable disease cases; nursing at the time of confinement in every home in the city; hourly nursing on a more-than-cost basis to those who can afford to pay; affiliation with every nurses' training school in the city, so that every student nurse, while in training, may get some idea of public health nursing.

Hospital News.—The U. S. Veterans' Bureau announces that the Neuropsychiatric Hospital, in course of construction at St. Cloud, will be ready for occupancy, September 2. Dr. George D. Rice, St. Cloud, has been appointed medical-officer-in-charge.——Two new units, the Todd Memorial Hospital and the George C. Christian Memorial Cancer Hospital, will soon be added to the Elliott Memorial Hospital of the University of Minnesota, Minneapolis.——The Ancker Hospital, St. Paul, has been selected as a "finishing school" for nurses trained in the Indian schools of the country.——The Children's Hospital has been established in St. Paul in a residence building adjoining St. Luke's Hospital, with which it is affiliated. Dr. Walter R. Ramsey is medical director. It will be a semicharitable institution.——The Moose Lake Community Hospital, of which Dr. Franklin R. Walters is superintendent, will erect a hospital building in the near future to cost $30,000.

MISSOURI

Hodgen Memorial Lecture.—Dr. John M. T. Finney, Baltimore, will deliver the Hodgen Memorial Lecture at the Bartscher Auditorium of the St. Louis Medical Society, February 28.

Physiotherapeutic Week in Kansas City.—The sixth annual meeting of the Western Electro-Therapeutic Association will be held in Kansas City, April 17-18, under the presidency of Dr. Harry H. Bowing, Rochester, Minn. Drs. Clinton D. Collins, Chicago, Burton B. Grover, Colorado Springs, Colo., and Omar T. Cruikshank, Pittsburgh, will be among the speakers.

NEW YORK

Annual Meeting of State Society.—The annual meeting of the Medical Society of the State of New York will be held at the Hotel Seneca, Rochester, April 21-23.

Typhoid Fever in Williamsville.—An outbreak of typhoid in a Methodist home for children at Williamsville began, Dec. 17, 1923. On January 13 there had been fifteen cases reported. The outbreak could not be traced to milk or water used in the institution.

Postgraduate Course in Infectious Diseases.—The fifth annual postgraduate course in infectious diseases and public health, offered through the cooperation of the Albany Medical College and the state department of health, will begin March 6, under the direction of Dr. Charles C. Duryee of the state department of health.

Bronx County Society Ball.—The tenth anniversary of the organization of the society was celebrated by a banquet and ball, January 9, at which 540 attended. Dr. N. B. Van Etten, the first president of the society, presided. Drs. Orrin S. Wightman, president of the Medical Society of the State of New York; Dr. Edward C. Podvin, president-elect of the Bronx County Medical Society, and Dr. George D. Stewart, president of the New York Academy of Medicine, gave addresses.

Legislative Bills.—There was recently introduced in the senate and assembly an act to amend the public health law in relation to the fiscal management of the state institute for the study of malignant disease; an act to amend the public health law in relation to the practice of optometry (this covers misrepresentation in advertising, as a cause to revoke the license of an optometrist), and an act to amend the public health law in relation to the state aid to counties engaging in public health work.

Symposium on Quacks.—At a meeting of the Albany County Medical Society, January 13, a symposium was held on quack doctors. Dr. Orrin Sage Wightman, president of the Medical Society of the State of New York, spoke on "The Medical Profession and the Quack"; George M. Whiteside, counsel for

the state society, on "The Public and the Quack"; Dr. Matthias Nicoll, Jr., state health commissioner, on "Public Health and the Quack," and Augustus S. Downing, state commissioner of education, on "The State and the Quack."

Laboratory Directors.—At a meeting of the public health council of the state department of health, Dec. 11, 1923, the qualifications for directors of public health laboratories which receive state aid were adopted as follows:

1. They shall possess the educational requirements of the degree of doctor of medicine prescribed by schools recognized by the regents of the University of the State of New York.
2. They shall have had special training of at least two additional years in pathology and bacteriology approved by the public health council; *Provided*, however, that under special conditions, either or both of these qualifications may be waived by the public health council.

Institutions Proposed.—The Crippled Children's Hospital Committee recently met with representatives of the Association for the Aid of Crippled Children, the reconstruction hospitals and the Elks to discuss state institutions for the care of crippled children. The committee is trying to induce the legislature to appropriate funds for developing the West Haverstraw Hospital for Crippled Children, the only state institution of its kind, and for the construction of two units of 300 beds each, one to serve the north and west sections of the state, the other the southern section.

Maternity and Infant Welfare.—In a preliminary report of the state department of health, it appears that of every 1,000 mothers who die from causes connected with childbirth over 500 of their babies also die within the first year. To this number is added the babies born dead and those unborn because the mother dies before delivery; hence the total loss of infant lives is much greater than over 500 children to 1,000 maternal deaths. About 2,000 mothers who died during the last four years left 4,800 living children motherless. The Metropolitan Life Insurance Company has been cooperating with agencies throughout the country to reduce the maternal mortality rate. Visiting nurses working directly for the company, or under arrangements with local associations, have cared for 113,698 maternity cases in the last year.

New York City

Janeway Lectures.—The Edward G. Janeway Lectures of Mount Sinai Hospital, New York, for 1924, will be delivered in April by Prof. Ludwig Aschoff, professor of pathology and anatomy at the University of Freiburg, Germany.

Tuberculosis Clinics.—Statistics compiled by the New York City Department of Health show that during the last three years 250 clinics have been held by the division on tuberculosis. At these clinics 6,421 persons have been examined and 4,401 roentgenograms have been made, none of which have been made without the written request of the family physician to whom all reports have been sent.

Personal.—Dr. Percy Brown has been appointed director of the radiographic department at St. Luke's Hospital to succeed Dr. Leon T. LeWald, resigned. Dr. Brown was formerly president of the American Roentgen-Ray Society. ——Dr. Martin Cohen has been reappointed as manager of the Manhattan State Hospital, Wards Island.——Dr. Simon Flexner, director of the Rockefeller Institute, has been reelected chairman of the public health council.

Free Lectures at New York Post-Graduate Medical School.—Friday afternoon lectures will be given at the New York Post-Graduate Medical School and Hospital as follows: March 7, "The Most Important Prophylactic Measures in Diseases of Women," Dr. James N. West; March 14, "The Limitations of Bronchoscopy and Esophagoscopy," Dr. Charles J. Imperatori; March 21, "The Management of Typical Fractures," Dr. John J. Moorhead; March 28, "Multiple Neuritis," Dr. John J. McPhee. The lectures begin promptly at 5 p. m., and all physicians are cordially invited.

State Bar Association and Narcotic Control.—The New York State Bar Association, at its annual meeting, January 19, adopted the following resolutions:

Resolved, That the report of the committee on legislation in relation to narcotic drug control be approved and placed on file and that the committee be continued; further

Resolved, That the bar association earnestly recommends the immediate enactment of legislation along the lines recommended in said report, and that the committee on legislation support such legislation accordingly; further

Resolved, That the bar association earnestly recommends the formulation of a uniform state narcotic drug control law under the auspices of the national conference of commissioners of state laws and of the commissioners of the state, and the committee on uniform state laws take action accordingly.

Examination of Children of Preschool Age.—The bureau of child hygiene of the department of health has initiated a system which encourages the physical examination of preschool children. Principals of certain schools have agreed to have parents bring to the schools during May and June children who will be of school age in September. A physician makes a physical examination of the child, in the presence of its mother, who is advised of defects found. So far as possible nurses follow up these children to see if the advice has been followed and to give further instructions. The New York County Chapter of the American Red Cross has volunteered the services of nurses to assist in the follow-up work.

NORTH DAKOTA

Personal.—Dean French of the University of North Dakota School of Medicine, and Dr. George M. Williamson, secretary of the state board of medical examiners, have been appointed by the governor to represent the medical profession of the state at the meeting of the Council on Medical Education and Hospitals of the American Medical Association, to be held in Chicago, in March.

OHIO

Dayton Chiropractors Convicted.—According to reports, seven Dayton chiropractors were convicted of practicing medicine without a license, January 29, and fined $50 each and costs. Ten other Dayton chiropractors were arrested early in January.

Personal.—Dr. William K. Ruble, Wilmington, has been reappointed district health commissioner of Clinton County for two years.——Dr. Reverdy E. Hughson, Bluffton, has been elected president of the Allen County District Board of Health for the ensuing year.——Dr. Morton M. Caruthers, a practitioner in Findlay for thirty-seven years, former president of the city council and state legislator from Hancock County, has retired from practice, at the age of 79.——Dr. Edson J. Emerick, for seventeen years superintendent of the Institution for the Feebleminded, Columbus, has been appointed head of the juvenile research bureau of the state welfare department, Cincinnati, to succeed Dr. Edmund M. Baehr, who resigned.

OREGON

Outbreak of Botulism.—Six persons are dead and four others are in danger of dying in Albany, following a meal in which spoiled preserved beans were served. Botulism, it is said, was the cause. The victims were all members of one family.

PENNSYLVANIA

Hygeia.—The Lawrence County Medical Society has presented a year's subscription to *Hygeia* to all the high schools and to the public library in New Castle.

Bedford Lecture.—The third Bedford lecture of the Pittsburgh College of Physicians will be given, April 24, by Dr. Frank Smithies, professor of medicine at the University of Illinois College of Medicine, Chicago, on "The Origin and Development of Ethics in Medicine and Their Influence on Medical Practice."

Lancaster County Banquet.—The annual banquet of the Lancaster City and County Medical Society was held at the Stevens House, Lancaster, February 6. Dr. M. M. Denlinger presided and the speakers were: Dr. Howard C. Frontz, president of the state medical society; Dr. Charles H. Miner, secretary of health of Pennsylvania, and Drs. Theodore Appel and Horace C. Kinzer.

Philadelphia

Shriners' Hospital.—At a conference of the national board of trustees of the Shriners' Hospital for Crippled Children, together with members of the board of trustees of the Lu Lu Temple Hospital Committee, plans were approved for the latest unit of the Shriners' Hospital for Crippled Children to be erected on the Roosevelt Boulevard, facing Pennypack Creek. The appropriation of $400,000 was voted for construction, and ground will be broken at once.

The Jefferson Drive.—Through a special gifts committee, the Jefferson Hospital is making a drive for $1,500,000 to finance and furnish the building now under construction on Sansom Street on the site of the old Jefferson Hospital. This new fourteen story annex will provide a clinical amphitheater with a seating capacity of 500; the Henderson radium department; staff, operating, delivery, social service and occupational therapy rooms. This is the one hundredth year of the organization of Jefferson Medical College, during which time it has graduated more than 14,000 physicians.

Emergency Medical Corps Formed.—In response to letters sent by Dr. Wilmer Krusen, director of public health and

charities, to more than 3,400 physicians of the city, a meeting was held at the Academy of Natural Sciences, February 7, and the Medical Emergency Corps of Philadelphia was organized. It is planned to have the corps divided into districts governed by a central board. Members will be subject to call at any time and will be available for fires, railroad wrecks or other disasters in or near Philadelphia, in addition to combating disease. In the organization of the Emergency Medical Corps, Dr. Krusen has the assistance of a committee composed of Dr. William Duffield Robinson, chairman, president of the Philadelphia Medical Club; Dr. Frank C. Hammond, a member of the board of trustees of the state medical society and dean of the medical department of Temple University; Dr. Charles A. E. Codman, former president of the state medical society and the Philadelphia County Medical Society; Dr. John D. McLean, former deputy commissioner of public health; Dr. William A. Pearson, dean of the Hahnemann Medical College, and Dr. E. J. Beardsley, a member of the faculty of Jefferson Medical College. Dr. Louis Lehrfield is acting secretary of the committee. A second step in the organization of the Medical Emergency Corps will be the organization of nurses and pharmacists to act as auxiliaries.

RHODE ISLAND

Personal.—Dr. Cornelius J. Hasbrouck, Bristol, was guest of honor at a banquet, given, January 27, to celebrate his fiftieth year in practice.

County Meetings.—At the annual meeting of the Kent County Medical Society, Dec. 13, 1923, Dr. Gilbert Houston, Crompton, was elected president; Dr. Fenwick G. Taggart, East Greenwich, vice president, and Dr. Charles S. Christie, Riverpoint, secretary.——Drs. Francis E. Burke, Wakefield, and John B. Warden, Ashaway, were elected president and secretary-treasurer, respectively, of the Washington County Medical Society, January 10, at Westerly.

TENNESSEE

Medical School to Enlarge.—Plans have been made by the trustees to enlarge the medical, pharmaceutical and dental departments of the University of Tennessee, Memphis, so that the institution may be increased from 400 to 800 students.

WASHINGTON

Society News.—The annual banquet of the Kings County Medical Society was held, February 4, in Seattle, under the presidency of Dr. Frank T. Maxson. Dr. William J. Mayo, Rochester, Minn., and Dr. Franklin H. Martin, Chicago, gave addresses. About 400 members were present, and invitations were sent out to members of all the medical societies in the state.——At the annual meeting of the Puget Sound Academy of Ophthalmology and Otolaryngology in Seattle, January 22, the following officers were elected for the ensuing year: president, Dr. Jay T. Dowling; vice presidents, Drs. Clement L. Hoeffler and Walter F. Hoffman; and secretary-treasurer, Dr. Morrill J. Morris.

WEST VIRGINIA

Society News.—At the annual meeting of the Harrison County Medical Society, January 3, at Clarksburg, Dr. Chester R. Ogden was elected president; Dr. John E. Corbin, vice president, and Dr. Cecil O. Post, secretary. Dr. Robert A. Ashworth, Moundsville, president of the West Virginia State Medical Society, gave an address.

WISCONSIN

Epidemic Closes Schools.—The schools of Eau Claire have been closed by the health department, following an epidemic of diphtheria.

Roentgen Society Organized.—The roentgenologists of Milwaukee County have formed the Milwaukee County Roentgen Society with the following officers: president, Dr. Frank W. Mackoy; vice president, Dr. Harry B. Podlaski, and secretary-treasurer, Dr. Clarence W. Geyer. The society meets on the first Friday of each month.

WYOMING

Personal.—Dr. Lee W. Storey, Douglas, has been appointed physician of Converse County.——Drs. Neil C. Geis and Dr. Walter R. Wynne were elected president and treasurer, respectively, of the Natrona County Medical Society at the annual meeting in Casper, recently.

CANADA

Hospital Association for Ontario.—A meeting of hospital officials was held at the Academy of Medicine, Toronto, Dec. 13, 1923, with Dr. Frederick B. Mowbray, Hamilton, in the chair, and the Ontario Hospitals Association was formed with the following officers: president, Colonel Gartshore, London; vice presidents, Mrs. Bowman of the Women's College Hospital, Toronto, and Dr. Edward Ryan, Hospital for the Insane, Kingston, and secretary-treasurer, Dr. Frederick W. Routley, Toronto.

Public Health News.—The Sanitary Inspectors' Association has affiliated with the public health association. January 1, all members of the sanitary association automatically became members of the Canadian Public Health Association, and the *Public Health Journal* became the official organ of the sanitary association.——The Toronto Social Hygiene Council is conducting a social hygiene exhibit at the St. Charles Hotel, Toronto, which was opened, January 21. Posters, wax models, social hygiene literature, books, and recreational apparatus were exhibited and daily lectures and motion pictures were given. The annual congress of the Canadian Public Health Association will be held in Montreal in September. This is a departure from other years, when it has met at the same time as the Canadian or Ontario medical associations.

GENERAL

Society's Name Not Changed.—Dr. Edwin Henes, Jr., secretary of the Tri-State Medical Association, advises that the association has not changed its name, as formerly reported. An interstate postgraduate assembly of the Tri-State Medical Association will be held at Milwaukee, October 27-30, under the presidency of Dr. Horace M. Brown, Milwaukee.

Reciprocity Among States.—The Oklahoma State Board of Medical Examiners reports that reciprocal relations have been established with Louisiana on the basis of an examination only.——The Ohio State Medical Board reports that it has completed negotiations for reciprocity with Tennessee. The agreement applies to those who have qualified by examination in either state subsequent to April 10, 1919, and requires one year of practice subsequent to licensure, and requires the applicant to obtain the certificate of preliminary education of the state in which he is making application.

Fake Hospital Promoter.—A man, stating that he was a representative of the Mayo Brothers, Rochester, Minn., and giving the name of "Dr. R. J. McDowell," arrived in Springfield, Tenn., recently. He stated that the Mayos intended to erect a hospital in that city and that he sought subscriptions for the hospital. Investigation revealed that similar schemes had been tried in Princeton and Paducah, Ky., where the man used the names "Dr. Whitfield" and "Dr. Franklin." "Dr. Anderson" is another alias used by him. The Mayo Clinic has no knowledge of the man.

American Hospital in London.—A hospital supported by Americans for Americans has been opened in London. Stranded Americans bereft of money will be able to obtain treatment gratis, while those of moderate means will be able to obtain skilled services of specialists at small charges. The contributions with which the hospital building and facilities were provided have been made exclusively by members of the American colony in Great Britain. Among those on the committee in charge of the hospital is Dr. Philip Franklin, an American surgeon who has practiced in London for twenty years.

Pharmaceutical Research.—Dr. F. B. Kilmer, New Brunswick, N. J., has established a fellowship in pharmaceutical botany at the Philadelphia College of Pharmacy and Science. The National Conference on Pharmaceutical Research has been fully organized with ten main committees representing the following national organizations: American Conference of Pharmaceutical Faculties, American Drug Manufacturers' Association, American Pharmaceutical Association, American Pharmaceutical Manufacturers' Association, Bureau of Chemistry, U. S. Department of Agriculture, National Association of Boards of Pharmacy, National Association of Retail Druggists, the Proprietary Association and the U. S. Pharmaceutical Revision Committee.

Health Legislation.—A bill has been introduced in Congress to provide a bureau in the department of labor to study the industrial, social and educational facilities for the deaf and dumb.——Another bill provides for the appropriation of $25,000 for the purchase and distribution, without charge, of antirabic virus to be used by the U. S. Public Health Service.

——A measure providing that food products be deemed adulterated when held in cold storage longer than the periods designated (beef, seven months; veal, two months; pork, four months, and eggs, three months) has been introduced. It requires that any article of food placed in cold storage shall be labeled to indicate the date of production, killing, packing, and when placed in cold storage.

Resolutions Favor Conference on Drug Traffic.—A resolution has been introduced in the House of Representatives by Representative Porter, which sanctions the expenditure of funds for the participation of the United States in two international conferences for the control of traffic in habit-forming narcotics. Representative Porter was the American delegate to the League of Nations Conference at Geneva, Switzerland, in 1923, at which negotiations were conducted to authorize the league to supervise agreements among nations on the traffic in opium and other dangerous drugs. The present resolution merely approves the necessary appropriation to attend the two conferences scheduled for 1924. The time and place for the conferences have not yet been determined.

Resolution on Beriberi.—The Philippine Island delegation to the convention of the Far Eastern Association of Tropical Medicine at Malaya, last September, submitted a proposal for international action in the control of beriberi. The association was of the opinion in consequence of a divergence of views of delegates that an international convention on beriberi at present is impracticable. The association reaffirmed, however, its belief that beriberi is a disorder of nutrition and that in the Far East the principal etiologic factor is a diet in which overmilled rice forms the staple food. The association recommended that individual governments be invited to promote further research into (1) the standardization of rice, (2) the effects of transport and storage on rice, (3) economic considerations, and that each government interested, and the Rockefeller Foundation, be invited to nominate a representative to a committee for beriberi, which shall report at the next congress.

Senate Committee Hears Criticism of Chiropractic.—In the report of the committee investigating the U. S. Veterans' Bureau, just presented to the Senate, sharp criticism is made on the policy of the bureau on the subject of chiropractic training. This report is the result of investigations by Gen. John F. O'Ryan, counsel for the committee. General O'Ryan places his comments with respect to chiropractic training under the heading of "Dishonesty and Neglect in Management" in the Veterans' Bureau. The report shows that inexperienced men had been permitted to advise trainees in the selection of their training objective and to make assignments of such objectives. Much inefficiency and abuse resulted "from the haphazard manner in which trainees were permitted to change their training objective." The report of General O'Ryan further states:

> "Trainees were inducted for instruction in courses as chiropractors. As practitioners of this method of treatment are permitted to be licensed under the laws of but 26 states, the authority or advice which allowed trainees to enter upon courses of instruction in which their field as qualified practitioners is thus limited constitutes an injustice to trainees and negligence on the part of the responsible bureau officials."

Appropriations Committee Cuts Venereal Funds.—A cut of the most drastic character for the maintenance of the Division of Venereal Diseases in the U. S. Public Health Service has been made by the House Committee on Appropriations in reporting the Treasury Department Bill to Congress. The budget provided for an annual appropriation of $149,000 for this work. The House Committee reduced this amount to $25,000. The effect of this reduction will be to terminate the present basis of cooperative activities with state board of health in venereal disease control; it will terminate the activities of the field force of the Public Health Service engaged in this work; it will necessitate the abandonment of research work carried on at Hot Springs, Ark., and bring to an end the educational campaign of national scope which has for several years been conducted by the service in Washington against venereal diseases. This division of the service had in charge the distribution of a fund of $25,000 among the states, provided the states contributed funds from the state treasuries for venereal disease control. With two exceptions only, all the states have participated in this work; which now must cease if Congress accepts the proposals of the House Committee.

Appropriations Committee Votes Funds to Howard University.—The Interior Department Appropriation Bill, as reported to the Senate from the Committee on Appropriations, provides for the expenditure of $350,000 for the construction of a new medical college for Howard University and $150,000 for its equipment. If Congress accepts the amendment of the Senate Committee, a most constructive action will have been accomplished to meet the shortage of colored physicians throughout the country. With one exception, Howard University is the only university having a medical college devoted exclusively to teaching medicine to colored students. The committee also restored other appropriations for Howard University which had been stricken out in the House of Representatives. In these items are provisions for the medical department; for chemical and biologic studies; and an item for the completion of the assembly hall and administrative headquarters of the department of health and hygiene, amounting to $157,000. The House of Representatives had reduced the appropriation more than $200,000, because of a sermon by a member of the board of trustees who denounced the religion of white people. The publication of this sermon occasioned sharp debate and criticism resulting in the cut referred to. The Senate Committee, however, restored these appropriations, adding $350,000 for the new medical college and $150,000 for its equipment.

LATIN AMERICA

Election of Officers.—The Caracas Medical Society recently elected Dr. V. Peña, president; Dr. D. Luciani, vice president; Dr. R. Medina Jiménez, secretary; Dr. J. C. de Armas, librarian; Dr. J. M. Espino, treasurer, and Dr. Eudoro González, editor of the *Revista de Medicina y Cirugía*, the organ of the society. The *Revista* is now in its sixth year.

Campaign for Health and Public Instruction in Venezuela.—Under the initiative of Dr. L. Razetti, editor of the *Gaceta Médica de Caracas*, the organ of the National Academy of Medicine, a movement for instruction of the public in preventive medicine has been inaugurated. The committee in charge includes Drs. Villegas Ruiz and A. Herrera Vegas, in addition to Razetti, of the Academy, and three members of the Caracas Medical Society, Drs. Luciani, R. Medina Jiménez and A. Pietri. It is proposed to instruct the public by lectures, articles in the papers, circulars, films, pamphlets, and other measures—a permanent campaign against tuberculosis, alcoholism, syphilis, malaria, cancer, leprosy, helminths, infant intestinal affections, tetany in children, etc. An intensive campaign against one of these diseases is planned for a week in every third month. The first of these Semanas Sanitarias de la Academia de Medicina, as the plan is called, is to be organized in February.

FOREIGN

William and John Hunter.—A memoir of William and John Hunter, by George C. Peachey, to be published this month, will sketch the early teaching of anatomy in England, as well as William Hunter's association with the Society of Navy Surgeons, and John Hunter's army career.

The Merklen Tribute.—The friends of Dr. P. Merklen, Paris, recently presented him with an Aubusson tapestry, with addresses by representatives of different societies and the staff of the Tenon Hospital. The occasion was his departure to assume the chair of clinical medicine at the University of Strasbourg.

Anthropology Medal.—The Royal Anthropological Institute has founded a Rivers memorial medal, in memory of Dr. W. H. R. Rivers, who was president of the institute at his death. The medal will be awarded for especially meritorious anthropologic work in the field. All British subjects, and anthropologists of other nations who are fellows of the institute will be eligible.

Earthquake Relief in Japan.—There are at present 190 medical stations in Japan caring for sick and injured among the earthquake and fire sufferers, which are conducted by the police board, the Red Cross and the imperial hospital fund. As most of them are tent hospitals and the equipment has been found to be very inadequate, the government will erect seventy-six more substantial buildings. They will be ready shortly.

Society News.—A special meeting of the Berlin Microbiological Society was held, Dec. 11, 1923, in commemoration of the eightieth anniversary of Koch's birth.——The German Congress for Internal Medicine will be held at Wiesbaden in April. The following subjects will be discussed: "Mineral Metabolism and Ionization," "Nervous Diseases of the Stomach" and "Experiences of Insulin Treatment" which will be discussed by Minkowski, president of the German Insulin Committee.——The French Société de chirurgie recently elected Dr. Souligoux president for the current year; Prof.

J. L. Faure, vice president, and **Dr. Lenormant,** secretary.——The Belgian Société de chirurgie has installed Dr. Mayer president; Drs. Herman and Derache, vice presidents, and Dr. Graeuw and Delchef, secretaries.

Lines of Research.—The work of the British Institute of Medical Research during the last year was directed in part along the following lines according to the annual report of the Medical Research Council:

The department of biochemistry and pharmacology undertook to organize methods of preparation and standardization of insulin, and to investigate the chemistry of insulin. An interesting antagonism between extracts of the posterior lobe of the pituitary body and insulin in their effects on the blood sugar was observed. In the department of experimental pathology, bacteriology and protistology, work on the nature and action of diaplyte vaccine, introduced by Prof. G. Dreyer, was undertaken. The investigation of rat leprosy was continued the early part of the year, also the preparation of a standard diphtheria toxin-antitoxin, and a study of the nutrient factors which stimulate the growth of bacteria. In the department of applied physiology, there was a study of the chemical exchanges of the body and their effect with reference to open air treatment of disease and the hygiene of physical labor. For studying the biologic action of light, a photometric method of measuring the relative energies of ultraviolet radiations was adopted. Conclusions reached on the anesthetic action of pure ether have been confirmed by the concurrent and independent observations of Prof. Storm van Leeuwen and others at the University of Leiden, who find that ether purified by crystallization with organic substances retains its full anesthetic potency. Work on the action of colloidal silica administered to animals, and on the improvement of technical methods for the investigation of very minute organisms which infect man have been continued.

University Donations.—The universities of Cambridge, Oxford, Edinburgh and Cardiff have recently received donations from the Rockefeller Foundation. The sum of £100,000 (approximately $450,000) will be provided for building a pathologic institute at the University of Cambridge and £33,000 will be contributed toward the endowment. A similar offer has been made to the University of Oxford for the department of chemistry.——The foundation has donated £50,000 (approximately $225,000) to the University of Edinburgh, Scotland, for medical teaching and research facilities. With this fund a clinical laboratory will be established in connection with the Royal Infirmary. An additional sum of £1,750 will also be granted annually for not less than five years toward the salary of the professor of surgery, which chair is at present vacant, on condition that the appointment shall be filled by a whole-time professor. Alexander Miles, F.R.C.S., senior lecturer in clinical surgery, has been appointed to discharge the duties of the chair during the vacancy.——The Foundation has also donated the sum of £14,000 (approximately $63,000) to the Welsh National School of Medicine, Cardiff, Wales, to assist in developing the medical department.

Progress of Science Upsets Verdict of 1878.—The *Paris médical* relates that after forty-four years—the first twenty-four of which were spent as a convict at hard labor—the progress of science has upset the verdict of science in 1878, and Justice has recognized its blunder by pensioning the mistakenly convicted victim. This is the final outcome of the famous Danval case in which Louis Danval, a pharmacist at Paris, was convicted in 1878 of having poisoned his wife because they were known to have quarreled, and 1 mg. of arsenic had been found in the woman's cadaver. He was condemned to hard labor for life, but improved technic enabled Gabriel Bertrand in 1902 to announce that arsenic is found habitually in the human body. Danval was then pardoned and released from the French penal colony in New Caledonia. He then appealed for rehabilitation, but the court decided in 1906 that there were no grounds for this. Danval appealed anew when further testimony as to the physiologic presence of arsenic in the body was presented in 1921. The courts appointed a committee of experts, including Gabriel Bertrand, P. Carnot, Ribierre, Querlit and C. Paul, and their report completely exonerated Danval, showing that even if the woman's body had contained 2 mg., which was probable, this was within the physiologic range. They added "The jury of 1878 might have recognized this fact if they had thought of the mineral waters of la Bourboule." Their report was followed by a reversal of the sentence and the awarding of a pension of 12,000 francs. Our exchange adds "Even the most evident truth is only a relative truth, after all."

Deaths in Other Countries

Dr. **James L. Lackie,** president of the Edinburgh Obstetrical Society and of the 1923 Gynecologic Congress.——Dr. **L. Königstein,** emeritus professor of ophthalmology at the University of Vienna, aged 74.——Dr. **Edward Emrys-Roberts,** professor of pathology and bacteriology in the National School of Medicine, University of Wales, aged 45.——Sir **Archibald D. Reid,** superintendent, roentgen-ray department, St. Thomas' Hospital, London, at Chur, Switzerland, January 15, aged 52.——Dr. **L. Ellero,** Novara, author of works on juvenile delinquency and the civil capacity of the insane, from the psychiatric standpoint, formerly a member of parliament.——Dr. **Simon Duplay,** emeritus professor of surgery at Paris, aged 88.——Dr. **A. Pollosson,** professor of gynecology at the University of Lyons.——Dr. **L. Löwenfeld,** Munich, a frequent writer on neurologic topics, aged 77.

CORRECTION

University of Michigan Alumni.—THE JOURNAL stated last week that Dr. James R. Kingsley had been elected president of the Alumni of the University of Michigan, Ann Arbor. Dr. Kingsley writes that this is incorrect, and that he was elected president of the Western Saint Joseph County University of Michigan Club, which includes alumni of Three Rivers, Mich., and vicinity.

Government Services

Veterans' Compensation

The status of former service men who are given a compensation rating after their disability is determined cannot be changed without approval of the central board of appeals and the director of the U. S. Veterans' Bureau, according to a recent order issued by General Hines. Heretofore, a veterans' compensation could be stopped by district boards of appeal and officers in the field. The fixing of the degree of disability by physicians at the time of examination of a veteran also was ordered, to prevent "paper ratings" by officials after examination of physicians' reports without themselves seeing the men.

Hospitals Authorized

Organization of the following hospitals has been authorized pursuant to instructions of the Secretary of War: General Hospitals No. 109 (Marquette University Hospital Unit, Milwaukee); No. 108 (Mercy Hospital Unit, Chicago); No. 122 (St. Joseph's Hospital Unit, Kansas City, Mo.), and Evacuation Hospital No. 48 (St. Vincent's Hospital Unit, Indianapolis).

U. S. Public Health Service Changes

Dr. Grover A. Kempf has been relieved from duty at Havre, France, and directed to Chicago in connection with child hygiene work.——Senior Surgeon Claude C. Pierce, Chicago, has been ordered to Mexico in connection with the yellow fever situation.

Senate Committee's Report on Veterans' Bureau

The medical service of the Veterans' Bureau is not attractive to high class professional men; the attending medical specialists in the bureau during the early part of its existence were among the best in the country; the whole medical service is overmanned and lacking in morale—these are outstanding observations in the report of Gen. John F. O'Ryan, counsel for the Senate Committee which has been investigating the Veterans' Bureau. General O'Ryan's report is made a part of the Senate Committee report which has just been made public. It is in part as follows:

Taking all things into consideration, the medical service of the Veterans' Bureau as an organization is inefficient. This inefficiency is due primarily to:

(*a*) The fact that the service does not attract the better class of men for the reason that it offers little opportunity for professional improvement, no permanent status, no fixed promotion and no retirements, and it is in competition with the medical services of the Army, Navy and public health service, all of which do offer these inducements.

(*b*) The lack of customary pleasant relations between physician and patient. The attitude of a great number of service beneficiaries is one of antagonism toward the medical officer. Every attempt at disciplinary measures, every diagnosis tending to affect the disability rating of the veterans, is laid at the door of the medical officer. There is also a great lack of the spirit of cooperation in carrying out remedial measures of cure.

(*c*) Political influence which has been brought to bear upon appointments, promotions and retentions in the service, even after cause for dismissal has been found.

(*d*) Interference in medical problems by nonmedical persons. The result of these conditions is that the whole medical service is overmanned and lacking in morale. In consequence, its work is not of the high standard which should obtain in such duty.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 21, 1924.

The Panel Court of Inquiry: Favorable Result for the Physicians

The court of inquiry appointed by the ministry of health to consider the remuneration to be paid to panel physicians has concluded. A capitation fee of about $2.75 is claimed by the British Medical Association in order to maintain the standard of 1914, when the fee was $1.75. The friendly (approved) societies continued their case in opposition to this claim. Sir Thomas Neill, chairman of the Emergency Committee of the Provisional General Council of Approved Societies, said that the societies had the highest respect for the medical profession and had done nothing to inflame people's minds against the panel system, although they never had the service to which they were entitled, which they required and must have. The fee of $1.75 under which the physicians took service under the Insurance Act was the price necessary to break organized opposition, and had no regard to the value of the service to be rendered. He submitted that this fee should be materially discounted before making any revision due either to economic changes which had occurred since it was fixed, or to alterations in the character of the service, if such should be established. In the area of the London Insurance Committee, comprising nearly one seventh of the insured persons in the country, the cost of each of the prescriptions provided by the committee averaged 16 cents. If this figure was applied to private practice, which might reasonably be estimated at 50 cents for each attendance at the office and 75 cents for each visit of the physician at the patient's home, including the provision of medicine and any necessary certificates, it would be seen that two visits at the office and one at the patient's house represented a payment of $2 a year. The private practice figure of today was considerably higher than it would be were it not for the existence of the panel physician's capitation fee, which from time to time provided the standard for variations of private practice charges. Therefore neither contract fees nor private practice existing today should be accepted for the purpose of assessing the proper fee for insurance service without considerable modification. The possibility of utilizing a time basis for the purpose of computing the capitation fee would naturally be considered by the court. In that case, attention should be directed to two events: 1. When it was proposed to reduce the maximum number of insured persons which a panel physician could undertake to less than 3,000, strong opposition was forthcoming from interested parties, who contended that a 3,000 panel practice gave ample time for carrying on an average-sized private practice. 2. The medical secretary of the British Medical Association recently stated that the amount of attendance necessary for a panel of 2,800 insured persons provided an "easy day's work." Dealing with certification, it was the cumulative effect of individual cases over a number of years which convinced the societies that the medical service was less than they had a right to expect.

Dr. Brackenbury, chairman of the Insurance Acts Committee of the British Medical Association, replied to the case presented by the approved societies. He considered many of the points raised irrelevant. He sympathized with their view that the medical service was not as complete as was desirable; but that was no reason for reducing the physician's remuneration; the question was the value of the service that was being given. Physicians did not complain of the increase of their responsibilities since 1913—they had themselves suggested many of them; but they claimed that in certain important respects, such as the provision of emergency treatment and the administration of anesthetics at specialist operations, additional duties had been laid on them, and that the value of these must be assessed. Dealing with the complaints as to certification, he said that it was often a matter of difficulty to say definitely that a patient was unfit for work one day and fit the next. The duty of certification was an oppressive one which had been placed on the profession over and above its duties to its patients; there was nothing comparable to it in private practice. As regards the preinsurance lodge practice, he accepted the evidence of the insurance committees that the Insurance Act offered a better service. He could not admit that the old lodge contract annual rate of $1 capitation fee was adequate; but, even accepting that, it was to be noted that a customary rate in those days was $1.25 services per member per year. Assuming a present-day service rate of $3.77, even the old rate would be equivalent now to $3, less 25 cents for drugs. In conclusion, he could not believe that the societies seriously suggested that a reduction in the capitation fee would improve the service available to the insured. The pay should not be so low that the physician would devote most of his time and interest to private practice. The profession wholeheartedly desired that the insured person should receive as complete a service as is given to private patients; but to secure that it was necessary that the capitation fee should be comparable to that derived from private practice.

The court of inquiry has reported to the government that the capitation fee to afford adequate remuneration for the time and service given by general practitioners should be $2.12. The fee for 1923 was 12 cents more than this, and the ministry of health proposed to reduce it by 36 cents, while the physicians claimed that it ought to be increased by about the same amount, and the approved societies said that it should be reduced by 50 cents. The ministry advanced its offer by 12 cents, with arbitration as an alternative. The profession chose the latter, and thus gained an additional 12 cents, achieving a distinct victory over the approved societies. As the result has only just been declared, the professional journals have not yet made any pronouncement. But Dr. Cox, medical secretary of the British Medical Association, in a press interview says that he thinks that the profession, on the whole, will be gratified. It is true that the award does not come up to the amount claimed, but naturally all proceedings of this kind must end in compromise. The award is 42 cents more than the approved societies said that the physicians ought to have. What he considered even more gratifying was that the health ministry and the representatives of the insurance committees testified that, on the whole, the service was efficient, and that though there were complaints about the services rendered by some physicians, these were not of such magnitude as would justify the attacks made in the press and otherwise against the whole system. Even some of the approved societies generously stated that the service was a good one and much superior to the lodge practice of preinsurance days. On the other side, Mr. P. Rockliff, secretary of the joint committee of the approved societies, states that his own view had been that the court would "split the difference." As the minister had already offered $2 and the profession had declined that and accepted the inquiry, the court could hardly be expected to award less, and by splitting the difference has met the medical profession. The real struggle, he said, has yet to come. The late minister of health proposed to take from the benefit funds of the insured $2 for the physicians, while only $1.75 had been allocated within these funds. Thus, the sums contributed for other benefits, such as dental benefits, would be seriously infringed on. Mr. Rockliff holds that no one can

suggest that the $2.12 should be taken from the funds. The new minister of health will therefore have to find another source, which, of course, means the taxpayer. That overburdened person is not likely to receive much consideration from a labor government.

The Smallpox Danger

The late minister of health pointed out, just before leaving office, that the number of smallpox cases in England and Wales has increased in the last five years from 7 to 2,500. The figures for the successive years from 1917 are: 7, 63, 294, 263, 315 and 973. Those for 1923 have not yet been computed, but it is known that 2,500 cases have occurred. In the last five weeks, cases have occurred in nine counties, the weekly notifications being 89, 63, 78, 115 and 80, respectively. So far the disease has been of a mild type, though some confluent cases have occurred. The great neglect of vaccination is a serious cause of anxiety, especially as areas in which the antivaccinationists are strongest, such as Gloucester, have been particularly affected. The statistics for 1922 show that no vaccinated person contracted smallpox under the age of 11 years, whereas, in that age group of children, 331 cases occurred among the unvaccinated.

The Epizootic of Foot and Mouth Disease

A decline has taken place in the epizootic of foot and mouth disease, which has caused such disastrous loss—the slaughter of more than 70,000 cattle, 25,000 sheep, 34,000 pigs and seventy-two goats. In consequence of the highly infectious nature of the disease, the authorities of the ministry of agriculture view with disfavor the gathering of farmers from infected areas at markets. However well a man may disinfect himself, there is a danger of the disease being carried on the clothes. The official regulations for disinfection provide for the cleansing and disinfection of the hands, boots and clothes of persons entering or leaving premises in which infected animals have been kept, the wearing of suitable overalls and rubber boots, and the placing at all exits from infected places of a receptacle containing disinfectant, in which persons leaving the premises can dip their boots. Great importance is attached by the authorities to the disinfection of rolling stock in which cattle are moved from one part of the country to another. So far the spread of the disease to man has not been proved, but in Glasgow the infection of two children is suspected.

PARIS

(From Our Regular Correspondent)

Jan. 18, 1924.

Reforms in the Medical Curriculum

The Association corporative des étudiants en médecine recently sent to the professors of the Faculté de médecine a questionnaire to guide the commission appointed to study reforms in the medical curriculum. It covers the following points: the character and scope of studies proposed in the new régime; extension of the hospital internship, and the distribution of interns; the study of specialties at the expense of general medicine, and examinations on fixed dates, as compared with examinations held when candidates are ready for them. The association desires that the commission on revision comprise professors, representatives of the government, delegates of the Union des syndicats médicaux de France, and delegates from the medical students.

The Illegal Practice of Dentistry

At the last general session of the Syndicat général des médecins stomatologistes, Dr. R. Millon of Fontainebleau presented an interesting report on the illegal practice of dentistry. While the illegal practice of medicine is comparatively rare, the illegal practice of dentistry is common. This is due to the fact that illegal practitioners are recruited from assistants to stomatologists. It has been jokingly said that there are as many irregular dentists in Paris as there are dental assistants. That is probably an exaggeration, but it must be admitted that few assistants seem able to resist practicing an art which they continuously observe and which therefore seems easy. Dr. Millon states that dentists often start their assistants on this path by entrusting to them work that is outside their field. This raises one of the most delicate questions in dentistry: What are the limitations of the dental mechanic? He should confine himself strictly to the workshop and should never enter the dentist's office. Unfortunately, such conduct is rare. The stomatologist should be familiar with prosthesis not only as practiced in the dental office but with that of the workshop as well.

There are various ways in which a dental mechanic may practice dentistry. He may not have an office, but clandestinely treat patients in their homes; or he may have an office, and allow himself to be called "doctor"; perform all kinds of dental operations, and thus openly defy the law. The latter type of illegal practitioner flourishes in the large cities of France, where there is very little supervision of the dental profession. In small towns, where every one is better known, illegal practitioners are rare. They are frequently found, however, in rural districts at considerable distance from cities. Here they appear once or twice a week, and enjoy the reputation, often unearned, that seems to surround those who come from great cities. Many irregular practitioners prefer to associate themselves with a registered dentist, who is content to receive a certain percentage of the profits, and may open another office a little farther on, where he practices in person. In this manner, one diploma is used by two dental offices. Some doctors of medicine who shielded irregular dental practitioners in this fashion, have been tried and found guilty as accomplices in illegal dental practice.

Millon proposes that the Syndicat des médecins stomatologistes and the Syndicat des chirurgiens-dentistes publish annually an official list of stomatologists and registered dentists. Thus dental charlatans would quickly be unmasked.

Distribution of Funds for Research Laboratories

At a recent meeting of scientists, deans of the faculties, directors of large scientific institutions, and others, M. Léon Bérard, minister of public instruction, discussed the national subscription for research laboratories. The minister said that it was not the province of the central government to interfere in the distribution of funds collected for laboratories, which amount now to about 13,000,000 francs. The task must be left to the committee of scientists who know the needs, and the best way to use these funds. M. Emile Picard, secretary of the Academy of Sciences, and several members of the committee in charge of the fund, stated that, according to the desire of contributors, the funds would not be used to construct buildings or to organize classes of instruction but to provide material equipment needed.

Strangling of Infant by Pacifier

Dr. Balthazard, professor of legal medicine at the Faculté de médecine of Paris, and Dr. Duvin, recently reported to the Academy of Medicine a case of an infant that swallowed a pacifier. The mother and the father attempted to remove it, but the child succumbed in a few minutes.

The museum of the Medicolegal Institute contains a nipple into which a cork had been inserted, which caused the strangulation of an infant. Balthazard also referred to a case of a child that suffocated from swallowing a pacifier, the bone of which was broken.

These cases show that pacifiers are dangerous instruments. It is to be hoped that the bill prohibiting the sale of pacifiers,

which was introduced in the chamber of deputies by Professor Pinard, may soon become a law.

New Medical Journal

The professors of the Ecole de médecine et de pharmacie in Marseilles have begun the publication of a monthly review, called *Revue médicale de France et des colonies*. The purpose of the journal is "to promote scientific work in medical circles of Marseilles and to bind more closely ties between Marseilles and the medical profession in the colonies of which it is the maritime and commercial center." Tropical diseases will doubtless have an important place in the new journal.

Death of Simon Duplay

Dr. Simon Duplay, formerly professor of clinical surgery at the Faculté de médecine of Paris, has died, aged 87. He was born in Paris, Sept. 10, 1836, and received his doctor's degree in 1865; in 1867 he became surgeon to the hospitals of Paris. He became agrégé professor in 1866, professor of surgical pathology in 1880, professor of clinical surgery in 1890, and had been a member of the Academy of Medicine since 1879. Many years ago Duplay gave up the practice of surgery and was no longer seen in medical circles. Since 1901 he had been a sufferer from cecitis. He was the author of a "Treatise on External Pathology" and a "Manual of Surgical Diagnosis," written in collaboration with Rochard and Démoulin. Duplay and Reclus supervised the publication of "A Treatise on Surgery," in eight volumes.

BELGIUM

(From Our Regular Correspondent)

Jan. 25, 1924.

New Journals

Under the editorship of Dr. Tricot-Royer, the first number of the *Bulletin de la Société belge d'histoire de la médecine* has been published. It contains more than one hundred pages, and it is well illustrated. Belgium formerly had no journal devoted to the history of medicine. The other new journal is *Le Cancer*, whose editor is Professor Bayet. It will be published trimonthly. The first number was issued just in time to be distributed at the congress of the Ligue nationale contre le cancer.

Results of the Prohibition Law

In a previous letter, I mentioned that Belgium adopted a partial prohibition law in 1919, which limits the sale and the right to dispense alcoholic beverages. In a recent publication, Dr. Boulenger has summarized the effect of this law. He examined numerous documents of the minister of finance and the minister of justice, and inspected records in certain hospitals. From his findings, he concludes that the consumption of distilled beverages ranges between 35 and 45 per cent. of the amount consumed before the World War. The number of saloons dispensing intoxicating drinks has dropped from 200,000 (1914) to 118,000 (1923). The number of cases of delirium tremens treated at the St. Jean Hospital in Brussels, which ranged from 46 to 50 in 1912, 1913 and 1915, has been reduced to from 22 to 25 in 1920 and 1923. The number of patients in the psychopathic hospitals has been reduced from 20,000 in 1913 to 17,500 in 1923. In 1913, the municipal shelters contained 6,000 vagabonds; in 1923, the number was 2,000. Boulenger adds that the number of prisoners in the civil prisons has dropped from 5,000 to about 4,000—in spite of the fact that many factors in our social life are working in the opposite direction: for example, the crowded condition of dwellings, the instability of economic conditions, and the wages of workingmen, which, although higher than formerly, have not advanced as fast as the cost of living. There is not a single factor in our social life at the present that aids in keeping down alcoholism, and in decreasing the incidence of insanity and crime. We may, then, with justice affirm that the law of 1919 has had a favorable effect.

Drug Addicts

An unexpected result of the World War is the spread over Europe of the abuse of narcotics. Before the war this was almost unknown in Belgium, but at present more persons are engaged in illicit traffic in drugs than ever before, and the number of drug addicts is constantly increasing. Some persons attribute the situation to the large number of foreigners in the country—diplomats, journalists, spies, officers—who constitute international groups that escape control.

A few months ago, the Société de médecine légale of France invited the Société de médecine légale of Belgium to join in a fight to combat the drug evil. This was a welcome suggestion. The Ligue belge d'hygiene mentale had been planning, for a year, to organize a campaign against the drug evil. Under these circumstances, the Ligue nationale belge d'hygiene mentale decided to make a thorough inquiry into addiction. A questionnaire was mailed to physicians throughout the country in penitentiaries and hospitals, where drug addicts were likely to be. The information secured shows that conditions in Belgium are not as alarming as in some other countries, but that that there are a considerable number of drug addicts. The number of addicts and traffickers in narcotics in our prisons (excluding prostitutes) does not exceed 3 or 4 per cent. Dr. Vervaeck has prepared a report which gives in detail the condition of affairs. In our large cities and on the frontiers, a number of persons from Germany have been arrested with large quantities of cocain in their possession.

Cancer and Charlatans

At the recent convention of cancer specialists, Dr. Mayer drew attention to the constant increase in charlatans. One needs only to open a newspaper to find announcements of extraordinary cures. We see advertisements of a long list of liqueurs, pills and elixirs, the price of which is always stated. Through such fake methods the patients lose valuable time. In a campaign against cancer, time constitutes a necessary factor. It is wrong, therefore, to permit an abuse so damaging to cancer patients. Dr. Mayer said that among 148 patients who consulted Professor Thiery, sixty-six had consulted pharmacists first and thirty-six had followed the treatment recommended. The indulgence by authorities of irregular practitioners is one cause of the increase of charlatanism. Dr. Mayer urged that this problem be solved at once. He said that the first thing is to induce the press to refuse such advertisements. Secondly, the authorities should proceed vigorously against illegal practitioners. Finally, the public should be informed of the danger of charlatans.

Physicians and Health Insurance Societies

For a year or more, difficulties have arisen between physicians and the increasing number of health insurance societies. These societies resemble the *Krankenkassen* of Germany, and enjoy some official sanction. Until recently, a good understanding has existed between the societies and their physicians, but the high cost of living, and the increasing difficulties of existence, have compelled physicians to charge more for their services, and at the same time the budgets of the societies have been seriously disrupted. This started a conflict which began last year in Liége, whence it spread until it broke forth in Brussels recently. Officials of the health insurance societies claim that the sacrifice demanded would bring financial ruin to their organizations. They say that the capitation fees amount to about 50 million francs, and that subsidies amounting to 25 million francs are received from the government. Of this total, 35 million francs is expended for medical service. It is not possible, they state, to give more for this purpose without

destroying the societies. But the question of fees is far from being the only problem. The organization of the practice of medicine is at stake. We hear constantly discussions of the problems of industrialization and of increased output, and it is not surprising to hear such questions raised in connection with the practice of medicine. The health insurance societies are creating their own clinics. They contend, with respect to specialties, that diagnosis and treatment by a group of physicians is the only way to obtain returns that one is entitled to expect from the standpoint of social hygiene; it is the only way to stop the charge that there is one system of medicine for the rich and another for the poor. They consider that the Collège médicale of Brussels is opposing this modern conception of medicine in demanding that which would kill the mutual aid societies, as well as activities which they have planned. The problem as presented amounts to a reorganization of social medicine. It will be interesting to follow.

BERLIN

(From Our Regular Correspondent)

Jan. 19, 1924.

Physicians and Health Insurance Societies

In negotiations between health insurance societies and physicians, in which the federal committee was mediator, January 17, it was decided to issue an emergency decree concerning the regulation of committees of control of the health insurance societies. Representatives of the medical profession approved the government's proposal and agreed to recommend to the physicians' league that the contract basis be restored. As the health insurance societies had previously informed the government that when the physicians agreed to resume contract practice they would be admitted to the panel on the basis of the old contracts, it seems likely that the insured will regain their rights soon.

Dust in Porcelain Factories

Holtzmann, medical inspector of industries for Baden, has published an article on dust inhalation in porcelain factories. In describing conditions in Baden, he reports that the two chief porcelain factories meet the demands of hygiene, that suction devices are provided to carry dust away, and that the housing conditions at one factory are satisfactory. From 1901 to 1921, there were 8.4 deaths per hundred male porcelain workers in the rural factory from affections of the lungs, as compared with 5.5 deaths among the other adults of the same area; among females, the deaths were 1.2 and 4.2, respectively. On the whole, there were fewer deaths among porcelain workers than there were in the remainder of the population, the ratio being 11.4:11.9. The tuberculosis mortality among young porcelain workmen is lower, and among the older workmen higher than for the remainder of the population. Holtzmann interprets this as indicating that occupational injuries are not a great factor in the incidence of tuberculosis among porcelain workmen. Harms, industrial hygienist of Mannheim, selected forty-one porcelain workers who he suspected were tuberculous for a clinical and roentgenologic investigation. Twenty-three of these workers had no subjective symptoms, but there was a history of previous tuberculosis. He concluded that clinical symptoms do not furnish conclusive evidence of pneumonoconiosis; that dust infection is comparatively rare; that tuberculosis is favorably influenced by dust containing silicic acid, and that tuberculosis among workers in the two large porcelain factories of Baden is no cause for alarm.

Death of Ernst Schweninger

Geheimrat Schweninger died in Munich, January 12, aged 73. He was originally a pathologic anatomist. For several years he was an assistant to Professor von Buhl in the Pathologic Institute of Munich. He became instructor in pathologic anatomy at the University of Munich in 1875 and did a considerable amount of research in this field. Circumstances caused him to engage in the practice of medicine, and among his patients was William, the youngest son of Fürst Bismarck. Through the son, Schweninger became acquainted with Bismarck, who had suffered many years from neuralgia, insomnia and other manifestations of neurasthenia. He had consulted many eminent physicians without avail. Schweninger knew the value of physiotherapy, dietetics and suggestion in the management of neurasthenic patients, and the last won for him at once the favor of Bismarck. At the first consultation with Schweninger, it is said, Bismarck, who was irritable and often rude, became indignant at the questions with which Schweninger bombarded him. Schweninger good naturedly replied: "You probably would have been better satisfied if you had called in a veterinarian; he doesn't ask his patients any questions." Schweninger remained for weeks in the home of Bismarck, devoting himself exclusively to his patient, and succeeding in improving his general health. Schweninger then became physician in ordinary to the prince, which position he retained until Bismarck's death. Although Schweninger now had a large practice among the well-to-do, he was not satisfied, feeling moved to take up research work again. In spite of opposition in the medical faculty and recommendations of the minister of public instruction, Schweninger became extraordinary professor of pathology and therapy and of the history of medicine at the University of Berlin. This episode was the beginning of enmity between him and representatives of scientific medicine. Professors of the medical faculty refused to recognize Schweninger as a colleague, after his election, and did not associate with him. Such treatment increased the bitter feeling and with tongue and pen he fought the "views of the scholastics." He had no faith in diphtheria antitoxin, tuberculin or surgery. In trials of charlatans, he often served as witness and usually gave testimony in favor of the accused. Schweninger had become director of internal medicine at the Lichterfelde Hospital, and on his recommendation, Prof. Carl Ludwig Schleich was appointed surgeon. Schleich also aroused the opposition of leading surgeons, with the result that he, too, became an enemy of the representatives of scientific medicine at the university. It is not at all surprising that these two opponents of the modern school soon disagreed, and that Schleich was obliged to resign. Schweninger continued to practice after Bismarck's fall, but his activities became gradually reduced. A pelvic fracture sustained on board ship compelled him to give up entirely, and to spend his last years sick of body although retaining an active mind.

Birthday of Professor Hofmeier

January 28, Professor Hofmeier, director of the Women's Hospital of the University of Würzburg, celebrated his seventieth birthday. He was a pupil of the former Berlin gynecologist Prof. Karl Schroeder, also his assistant and became later his son-in-law. Hofmeier began his university career as an instructor in the University of Berlin. In 1887, he became a professor extraordinarius in the University of Giessen, and in 1888 he succeeded Scanzoni as ordinarius in the University of Würzburg. His method of treating placenta praevia by combined version has saved many lives. In the prophylaxis and control of puerperal infection he has been an indefatigable investigator. He was among the first to study the metabolism of the new-born. His observations on the relation between the reproductive processes and myoma have influenced their diagnosis and treatment. He is the author of "Outlines of Gynecologic Operations," which has passed through several editions. He is an extraordinary operator, and has been especially influential in the development of myotomy. His contributions to the anatomy and operative treatment of uterine carcinoma are equally important.

Marriages

BRUNO AUGUSTUS LUNGMUS, Milwaukee, to Miss Martha Lucille Snyder of Oconomowoc, Wis., Dec. 1, 1923.

WALTER EDWARD FUTRELLE, Morgantown, N. C., to Miss Phoebe Palmer of Richmond, Va., January 18.

STONEWALL JACKSON BLACKMON, Kershaw, S. C., to Miss Sue Morrison of Fountain Inn, Dec. 31, 1923.

WALTER PHILLIPS MORTON, Indianapolis, to Miss Blanche Liffick of New York City, January 27.

BENJAMIN P. GRABER, Freeman, S. D., to Miss Maude C. McHale of Scranton, Pa., Dec. 3, 1923.

GUY CHARLES CRIST, Harrisburg, Pa., to Miss Catherine Rishel of Williamsport, January 1.

DUKE R. GASKINS, Harrisburg, Ill., to Miss Carmen Patterson of Carthage, Mo., January 18.

DELMAR L. DAVIS, Omaha, to Miss Clara Grey of Des Moines, at Chicago, recently.

ORVILLE RAY MILLER to Miss Alice Ross Trent, both of Louisville, Ky., January 30.

EDWARD JAMES COMERFORD to Mrs. Mary S. Suess, both of Pittsburgh, Nov. 20, 1923.

Deaths

Jacques Loeb, head of the division of general physiology in the Rockefeller Institute for Medical Research since 1910, and known throughout the world as one of the great medical investigators of the United States, died of heart trouble, February 11, aged 64, at Hamilton, Bermuda, where he had gone to undertake experiments at his Marine Laboratory.

Dr. Loeb was born in Germany, April 7, 1859. He was graduated from the Ascanisches Gymnasium in Berlin, and studied medicine in Berlin, Munich and Strasbourg, receiving his M.D. degree from the latter institution in 1884. From 1886 to 1888 he was assistant in physiology in the University of Würzburg; from 1888 to 1890, in the University of Strassburg. From 1889 to 1891, he made investigations in pathology at Naples, Italy. He became assistant in biology at Bryn Mawr in 1891; assistant professor in physiology and experimental biology in 1892; associate professor in 1895, and professor in 1900. Then he was called to become professor of physiology in the University of Chicago, which office he held until 1902, leaving to take a similar position in the University of California, where he remained until 1910. Since 1910, he has directed the division of general physiology in the Rockefeller Institute.

The publications of Professor Loeb have brought to him distinction and universal recognition. They include particularly work on artificial parthenogenesis, analyses of the mechanical and chemical basis of the simpler forms of animal behavior, studies of the dynamics of living matter and theoretical conceptions of life which have lead to a mechanistic philosophy. His first studies were on the heliotropism of animals and its identity with the heliotropism of plants. In 1905, all his earlier work was collected in two volumes under the title "Studies in General Physiology." He has since published the "Dynamics of Living Matter," 1906; "The Mechanistic Conception of Life," 1912; "Artificial Parthenogenesis and Fertilization," 1913; "The Organism as a Whole," 1916; "Forced Movements, Tropisms and Animal Conduct," 1918; in addition to numerous papers dealing with his special investigations. Since its foundation, he has been the editor of the *Journal of General Physiology*, in which most of his researches have been published.

Professor Loeb was a member of practically all of the learned societies devoted to physics, chemistry and physiology. He was an honorary member of all of the famous foreign societies, including the Académie des Sciences de l'Institut de France, the Linnean Society of London, and the Royal institutes of Great Britain, Belgium and Russia. In his death, American medical science loses a profound worker, a leader of great influence, a man whose work and whose career were an inspiration to many young men.

Howard Priest ● Lieutenant Commander, M. C., U. S. Navy, Portsmouth, N. H.; Kentucky University Medical Department, Louisville, 1906; appointed to the Navy, April, 1914; formerly served with the Medical Corps of the U. S. Army; on mine patrol in the North Sea, during the World War; for the last three years on the staff of the U. S. Naval Hospital at Portsmouth, where he died, January 22, aged 39.

Wallace Joseph Charles Aubry, Binghamton, N. Y.; University of Montreal Medical Faculty, Montreal, Que., Canada, 1909; Albany (N. Y.) Medical College, 1910; served in the M. C., U. S. Army, during the World War; member of the Medical Society of the State of New York; formerly on the staff of the Kings Park (N. Y.) State Hospital; aged 44; died, January 23, in Albany.

Daniel A. Shea, Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1906; member of the Vermont State Medical Society; for fourteen years instructor in medicine and physical diagnosis at his alma mater; on the staffs of the Mary Fletcher Hospital, Burlington, and the Fanny Allen Hospital, Winooski; aged 42; died, January 25, of pneumonia.

Charles Schneider, South Williamsport, Pa.; College of Physicians and Surgeons, Baltimore, 1881; member of the Medical Society of the State of Pennsylvania; past president of the Lycoming County Medical Society; formerly city health officer; aged 63; died, January 24, at the Williamsport (Pa.) Hospital, following a long illness.

Empson Haines Bainbridge ● Philadelphia; University of Pennsylvania School of Medicine, 1901; Medico-Chirurgical College of Philadelphia, 1905; formerly instructor of obstetrics at the Medico-Chirurgical College of Philadelphia; aged 47; proprietor of the Bainbridge Hospital, where he died, January 21, of cerebral hemorrhage.

John Cresap McCoy, Reading, Pa.; Medical Department of the University of the City of New York, 1879; formerly clinical professor of laryngology at the University and Bellevue Hospital Medical College, New York; aged 66; died, January 12, at the Delaware Hospital, Wilmington, of gangrene of the foot.

James Albert Honeij ● Boston; Tufts College Medical School, Boston, 1908; member of the Connecticut State Medical Society; formerly professor of medicine at the Yale University School of Medicine, New Haven; on the staff of the City Hospital; aged 43; died, January 24, of heart disease.

William John Hyde, San Francisco; University of Calcutta (Medical College of Bengal), India, 1864; M.R.C.S., England, 1870; surgeon, Royal Army Medical Corps for many years; aged 74; died recently at the University of California Hospital, of chronic nephritis and myocarditis.

William Rogers, Brookline, Mass.; Medical School of Maine, Portland, 1872; Civil War veteran; formerly member of the Maine state legislature; at one time ship surgeon to the New York and Porto Rico Steamship Company; aged 83; died, Dec. 23, 1923, of senility.

Wesley Emmet Gatewood, San Diego, Calif.; Dartmouth Medical School, Hanover, N. H., 1876; Bellevue Hospital Medical College, New York, 1876; formerly a practitioner in Ohio; aged 78; died, January 23, at the San Diego County General Hospital, of cerebral hemorrhage.

Gilbert Norris Jones ● Wellesley, Mass.; Medical School of Harvard University, Boston, 1888; formerly member of the school board, and chairman of the board of health; at one time on the staffs of the Boston City, and the Boston Lying-In hospitals; aged 61; died in January.

Oscar Copeland, Red Bay, Ala.; Medical Department University of Tennessee, Nashville, 1882; member of the Medical Association of the State of Alabama; formerly demonstrator in anatomy at his alma mater; aged 67; died, January 15, of diabetes mellitus.

William E. McCampbell, Nashville, Tenn.; University of Tennessee College of Medicine, Memphis, 1881; member of the Tennessee State Medical Association; formerly professor of clinical medicine at his alma mater; aged 69; died January 24.

William W. Hyatt, Willisburg, Ky.; University of Louisville Medical Department, 1887; member of the Kentucky State Medical Association; aged 62; died, January 28, at the Louisville (Ky.) City Hospital, of burns received in a fire at his hotel.

Sherman Loughridge ● Grant's Pass, Ore.; University Medical College of Kansas City, Mo., 1897; on the staff of the Good Samaritan Hospital, Grant's Pass; aged 59; died, January 24, from injuries received in an automobile accident.

Walter Ela, Cambridge, Mass.; Medical School of Harvard University, Boston, 1875; member of the Massachusetts Medical Society; a founder and formerly on the staff of the Cambridge Hospital; aged 75; died, in January.

William Burton Webb ✱ Beaver Dam, Wis.; Hahnemann Medical College and Hospital, Chicago, 1882; served in the M. C., U. S. Army, during the World War; aged 65; died suddenly, January 24, of heart disease.

Joseph L. Derr, Salladasburg, Pa.; University of Maryland School of Medicine, Baltimore, 1889; member of the Medical Society of the State of Pennsylvania; aged 57; died, Dec. 25, 1923, of carcinoma of the intestine.

William Pleasant Robinson, Nashville, Tenn.; Vanderbilt University Medical Department, Nashville, 1911; member of the Tennessee State Medical Association; aged 40; died suddenly, January 21, of heart disease.

George Lewis Perry, Athol, Mass.; Dartmouth Medical School, Hanover, N. H., 1879; member of the Massachusetts Medical Society; chairman of the board of health; aged 73; died, January 13, of heart disease.

Clara May Hayden, Ingleside, Neb.; State University of Iowa College of Medicine, Iowa City, 1907; formerly on the staff of the State Hospital, St. Peter, Minn.; aged 43; died, January 21, following an operation.

Mary Alice Downer, St. Paul; Northwestern University Woman's Medical School, Chicago, 1896; Hahnemann Medical College and Hospital, Chicago, 1902; aged 54; died, January 20, of cerebral hemorrhage.

Karl Taylor Richards, New York; Dartmouth Medical School, Hanover, 1900; on the staff of the Manhattan State Hospital; aged 48; died, January 19, at the Riverside Hospital, of tuberculosis.

Francis A. Mazzei, Washington, D. C.; Medical Department of Columbia University, Washington, 1895; member of the Medical Society of the District of Columbia; aged 60; died, January 11.

Robert M. Moore ✱ Olathe, Kan.; Medical Department of Washington University, St. Louis, 1892; aged 56; was killed, January 21, when the automobile in which he was driving was struck by a train.

Peter Hyndman, Jackson, Mich.; Detroit Medical College, 1879; member of the Michigan State Medical Society; formerly city health officer; aged 70; died, January 18, following a long illness.

Levi W. Gardner ✱ Harbor Springs, Mich.; Cincinnati (Ohio) College of Medicine and Surgery, 1883; past president of the Emmett County Medical Society; aged 68; died, January 22.

William Ferguson, New York; McGill University Faculty of Medicine, Montreal, Que., Canada, 1894; member of the Medical Society of the State of New York; aged 51; died, February 3.

Kimble R. Scott ✱ Parsons, Kan.; National Medical University, Chicago, 1907; Chicago College of Medicine and Surgery, 1909; aged 45; died, January 23, following a long illness.

William Kopp Tritle Sahm, Pittsburgh; Jefferson Medical College of Philadelphia, 1877; member of the Medical Society of the State of Pennsylvania; aged 73; died suddenly, January 25.

Leslie L. Robertson ✱ Middlesboro, Ky.; University of Louisville Medical Department, 1889; president of the National Bank of Middlesboro; aged 55; died, January 23.

Charles McVey Chapman, Shelbina, Mo.; University Medical College of Kansas City, Mo., 1900; for twelve years county coroner; aged 57; died, January 22, of pneumonia.

Frank Clark Katherman ✱ Whitney, Pa.; Jefferson Medical College of Philadelphia, 1901; served in the M. C., U. S. Army, during the World War; aged 47; died, January 23.

Warren E. Harlan, St. Louis; Barnes Medical College, St. Louis, 1902; member of the Missouri State Medical Association; aged 47; died, January 16, of pneumonia.

William B. Irwin, Churchtown, Pa.; Jefferson Medical College of Philadelphia, 1879; formerly member of the school board; aged 81; died, January 14, of asthma.

Frank Barton Brubaker, Mifflinburg, Pa.; Jefferson Medical College of Philadelphia, 1892; also a druggist; aged 54; died, January 20, following a long illness.

T. Bates Cooke, Pasadena, Calif.; Dartmouth Medical School, 1896; member of the New Hampshire Medical Society; aged 70; died, January 22, of senility.

J. K. P. Poindexter, Kosse, Texas; Texas Medical College and Hospital, Galveston, 1874; formerly mayor of Kosse; aged 82; died, January 9, of senility.

Henry Martin Boldt, Ellisgrove, Ill.; Missouri Medical College, St. Louis, 1879; member of the Illinois State Medical Society; aged 72; died, January 19.

Sophia E. Georgi, Cincinnati; Pulte Medical College, Cincinnati, 1899; aged 66; died, January 28, at the Deaconess Hospital, following a long illness.

William Durbin Brown ✱ Keedysville, Md.; University of Maryland School of Medicine, Baltimore, 1894; aged 51; died, January 20, of heart disease.

Florus Eugene Holmes, Ypsilanti, Mich.; Hahnemann Medical College and Hospital, Chicago, 1883; aged 65; died, January 26, of heart disease.

Moore Stockton McKennan ✱ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1892; aged 56; died, January 20, of pneumonia.

Wilmer W. Russell, Berkeley, Calif.; Pulte Medical College, Cincinnati, 1876; Civil War veteran; aged 91; died, January 22, of senility.

Hyman H. Pulsipher, Jackson, Fla.; Cleveland (Ohio) Medical College, 1876; also a druggist; aged 86; died, January 23, of paralysis.

William Nelson Moffet, Dike, Iowa; College of Physicians and Surgeons, Chicago, 1900; aged 49; died, January 15, of carcinoma of the jaw.

John Overton Pratt, Biloxi, Miss.; Medical Department of the Tulane University of Louisiana, New Orleans, 1905; aged 42; died, January 22.

Edmund Thomas Hewson, Detroit; University of Buffalo (N. Y.) Department of Medicine, 1866; aged 90; died, January 19, of senility.

Charles Wilson Southworth ✱ Salem, Ore.; University of Buffalo Department of Medicine, 1898; aged 53; died, January 17, of pneumonia.

William Preston Hartford, Dubuque, Iowa (licensed, Iowa, 1897); member of the Iowa State Medical Society; aged 70; died, January 23.

Henry Eugene Kinyon, Empire, Calif.; Hahnemann Medical College and Hospital, Chicago, 1890; also a druggist; aged 65; died, January 20.

Mabelle Van Horn Goessling, St. Louis; American Medical College, St. Louis, 1889; aged 58; died recently, of carcinoma of the bladder.

William Henry White, Franklin, Ind.; Hahnemann Medical College and Hospital, Chicago, 1891; aged 73; died, January 30, of senility.

Gilman G. Shaw, Bradford, Ill.; Eclectic Medical College of Pennsylvania, Philadelphia, 1866; aged 82; died, January 24, of senility.

Edgar William Stokes ✱ Louisville, Ky.; Kentucky School of Medicine, Louisville, 1894; aged 46; died, January 24, of heart disease.

Samuel W. Rader, Grange, Pa.; Ohio Medical University, Columbus, 1893; aged 52; died recently, of an overdose of chloroform, presumably self-administered.

David Oliver Leonard, Reidville, S. C.; College of Physicians and Surgeons, Baltimore, 1888; aged 58; died, January 17.

Charles Edward Steadman, Junction City, Kan.; Rush Medical College, Chicago, 1866; aged 80; died, February 1, of senility.

James William Russell ✱ Longtown, Mo.; St. Louis Medical College, 1887; aged 58; died recently, of heart disease.

Henry H. Zaun, Omro, Wis.; Northwestern University Medical School, Chicago, 1891; aged 61; died, Dec. 2, 1923.

John P. Hight, Fayetteville, Ark. (years of practice); Confederate veteran; aged 80; died, January 19, of senility.

Henry G. Schuessler, Joliet, Ill.; College of Physicians and Surgeons, Chicago, 1898; aged 50; died, Nov. 24, 1923.

William E. Sherrow, Ashley, Ind.; Indiana Eclectic Medical College, Indianapolis, 1888; aged 68; died, in January.

John A. Aldred, Indianapolis; Medical College of Indiana, Indianapolis, 1879; aged 69; died, January 25.

Franklin A. Miller, Ensor, Ky.; Louisville (Ky.) Medical College, 1885; aged 66; died, January 9.

Western L. Capell, Omaha; Barnes Medical College, St. Louis, 1894; aged 61; died, January 8.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

ICHTHYOL AND ICHTHALBIN OMITTED FROM N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report announcing the omission of Ichthyol and Ichthalbin from New and Nonofficial Remedies and of the report, "The Therapeutic Value of Ichthyol and Related Products" on which the deletion of Ichthyol and Ichthalbin is based.

W. A. PUCKNER, Secretary.

Ichthyol

Ichthyol was introduced into dermatology about forty years ago, largely through the influence of Unna. At that time physicians commonly paid more attention to the reputation of those who recommended drugs than to the evidence on which the recommendations were based, and ichthyol came into wide use during its skilful exploitation.

It has been difficult to obtain acceptable evidence concerning the therapeutic value of ichthyol, and the Council retained it in New and Nonofficial Remedies, with increasing restrictions of the therapeutic claims for it, until the period of its acceptance expired in December, 1922. The opinion has been divided with good observers on both sides of the question, but after some years of consideration and doubt, the Council has come reluctantly but decisively to the conclusion that the evidence against the product outweighs the favorable evidence.

A careful study of the literature revealed the fact that there is no satisfactory evidence that ichthyol has any therapeutic value other than that of a mild antiseptic and that of being soothing to inflamed mucous membranes; accordingly, the manufacturers were informed that ichthyol would be omitted from New and Nonofficial Remedies on the expiration of the period of acceptance unless the claims made for it were brought into harmony with this evidence.

Merck and Company, who market the product in the United States, declined to limit their claims so as to harmonize them with the views of the Council. At that time, ichthyol was being advertised for the treatment of rheumatism, erysipelas and gonorrhea.

The Council holds that the recommendation for the use of ichthyol in the treatment of rheumatism, erysipelas and gonorrhea is unwarranted unless it is made clear that in these conditions, ichthyol is only feebly antiseptic and soothing to inflamed mucous membranes. Dependence on it alone for use in the treatment of these conditions is fraught with grave danger to the patient.

The Council considers that the evidence warrants the claims that ichthyol is feebly antiseptic and that it is soothing to inflamed mucous membranes. The Council, however, is obliged to omit ichthyol from New and Nonofficial Remedies because the further claims, contained in the advertising of Merck and Company, were held unwarranted in view of the evidence presented in the report, "The Therapeutic Value of Ichthyol," which is appended.

Ichthalbin

Ichthalbin is described as a compound of ichthyolsulphonic acid and albumin. Its actions and uses are stated to be essentially the same as those of ichthyol.

The manufacturer of ichthalbin (E. Bilhuber, New York) was informed that unless the therapeutic claims made for ichthalbin conformed to the evidence submitted in the appended ichthyol report, a copy of which was sent to him, ichthalbin would be omitted from New and Nonofficial Remedies on the expiration of the period of acceptance, Dec. 31, 1922.

Circulars in use during 1922 contained the following statements incompatible with the evidence available to the Council:

"An easily absorbed preparation of Ichthyol for internal use as an *intestinal antiseptic* and in skin diseases. Indications: Ichthalbin is especially recommended in chronic, gastric and intestinal catarrh, and in the digestive disturbances of children. In conjunction with the appropriate local treatment it is also indicated in various forms of skin diseases, and is particularly useful for children, e. g., in moist infantile eczema, in lichen urticatus, and also in urticaria, rosacea, furunculosis, and congestive dermatoses."

The Council voted to omit ichthalbin from New and Nonofficial Remedies because the claims advanced for it are unwarranted.

The Therapeutic Value of Ichthyol and Related Products

The following report on the therapeutic value of ichthyol is based on a review of the literature by Soma Weiss, assistant in pharmacology, Cornell University Medical College, and on letters received by the Council in answer to a questionnaire:

ORIGIN AND INTRODUCTION INTO THERAPEUTICS

The crude oil from which ichthyol is obtained is produced by distilling certain shales which occur in Tyrol. The use of the crude oil by the peasants a century ago was accidentally called to the attention of Schroeter,[1] who gave a specimen to Unna.[2] The latter pronounced it of value in dermatology, and Schroeter purchased the site from which this oil is obtained and founded the Ichthyol Company of Hamburg in 1884.

This oil is a hydrocarbon, occurring to the extent of from 10 to 60 per cent. in a brown or black mineral (shale) which contains the imprints of fish. Von Freitsch concluded that the oil contains residues of fossil fish.

PHYSICAL AND CHEMICAL PROPERTIES

The brown or black, ill-smelling tarlike oil is treated with concentrated sulphuric acid, during which the temperature rises to 100 C. The mixture is then neutralized with ammonium hydroxid or other bases, which are indicated in the names of the ichthyols of commerce. The specific gravity of the oil is 0.865; it boils at a temperature beginning at 100 and rising to 255 C.[3] Its composition has wide variations.[4]

Ammonium ichthyolate—ichthyol—is a dark brown or black semisolid, of a disagreeable odor recalling that of crude petroleum oils. The ichthyol of the Austrian pharmacopeia is, in general, more nearly solid than is that of the German.[5]

Baumann and Schotten[3] found the following composition for the oil: carbon, 77.25; hydrogen, 10.52; sulphur, 10.72; nitrogen, 1.10; so that the molecular ratio of carbon to sulphur is as 28 to 1.5. The formula of the ammonium ichthyolate (ichthyol) is stated to be $C_{28}H_{36}S_2O_6(NH_4)_2$ with variable amounts of water.[6]

According to Unna,[7] ichthyol and its constituents reduce ferric chlorid to the ferrous state, and reduce potassium permanganate feebly, and probably they reduce Fehling's solution, but no typical reddish-yellow precipitate is formed. He attributes the reducing activity of ichthyol mainly to the sulphon, but even this sulphon is weaker than chrysarobin; and since the sulphon constitutes a small part of the ichthyol, it is obvious that the latter is far weaker than chrysarobin as a reducing agent.

PHARMACOLOGY

Baumann and Schotten[3] found that no perceptible effects followed the administration of daily oral doses of from 10 to 12 gm. of ichthyol to dogs, but that vomiting followed daily amounts of from 18 to 28 gm.; the animals became normal after a day or two.

Various observers attribute transient vomiting in man to the disagreeable odor of ichthyol.[8]

1. Schroeter, R.: Monatschr. f. prakt. Dermat. **1**: 333, 1882.
2. Unna, P. G.: Monatschr. f. prakt. Dermat. **2**: 289, 1882.
3. Baumann and Schotten: Monatschr. f. prakt. Dermat. **2**: 257, 1883.
4. Bechurts, H., and Frerichs, H.: J. Am. Pharm. A., 1913, p. 335.
5. Habel, V.: Wien. klin. Rundschau, 1898, p. 316.
6. Koller, K.: Aertzl. Rundschau, 1912, p. 12.
7. Unna, P. G.: Monatschr. f. prakt. Dermat., 1897, p. 533.
8. De Renzi: Nuova Riv. Clin. Ter., 1902, p. 350.

Zuelzer[9] found nitrogen and sulphur retention in three experiments in man, and maintained that the sulphur of the ichthyol caused diminished protein decomposition; he recommended ichthyol in the treatment of various diseases for the purpose of increasing the weight. He used ichthyol during three months while treating thirty patients, of whom only eight are reported to have gained in weight. The total lack of details of the conditions in which the ichthyol was used makes it impossible to form any opinion as to the value of his conclusions, but it is often stated that ichthyol is useful for the purpose of improving the general condition, although no one, apparently, has made any detailed observations in such conditions.

Derivatives of ichthyol are readily formed by the interaction of metals, formaldehyd (ichthoform) and protein with ichthyol.

CLINICAL OBSERVATIONS

Ichthyol first found application in dermatology, and it seems that Unna alone attempted to explain its effects on a chemical basis. He considered its reducing power to be its most important property, and classed it with pyrogallol and chrysarobin. The following are cited by Unna as properties of such *reducing agents:*

(*a*) Keratinization, which results from the withdrawal of oxygen from the cells.

(*b*) Vasoconstriction, causing antiphlogistic effects by the withdrawal of oxygen from the cells of the vessels which he supposed to be especially sensitive to loss of oxygen because of their normally rich oxygen supply.

(*c*) Analgesia, which is due indirectly to the vasoconstriction whereby the pressure on nerves in edema is reduced.

(*d*) Antiseptic action: Unna holds that vasoconstriction and keratinization render the field of septic inflammation unfavorable to the micro-organisms, and that ichthyol is therefore indirectly, as well as directly, antiseptic. In support of this view he cites the use of resorcinol ointment in the treatment of measles and scarlet fever, and of pyrogallol and chrysarobin in herpes tonsurans and psoriasis, but he does not mention ichthyol itself in the treatment of these conditions.[10]

Unna says that the capacity of ichthyol for promoting the growth of new skin depends on the contained sulphonic acid, since the sulphon, the tarlike residue and the inorganic salts have little effect, and that this promotion of the regeneration of skin is due to its precipitating albumin of the superficial layers, since it precipitates albumin from its solution in vitro. This is opposed to his earlier view (already mentioned) that ichthyol depends on its reducing property for its therapeutic effects. At that time he attributed the effects mainly to the sulphon; now he attributes them mainly to the sulphonic acid. This change of view explains much of the later confusion in the literature.

Other dermatologists[11] attribute the effects of ichthyol to the sulphur present, without attempting to determine which form is chiefly concerned, while still others attach importance to the high oxygen content of the ichthyol.[2]

COMMENT

Various authors attribute the therapeutic value of ichthyol to its sulphur content irrespective of the form in which it is present, but it is obvious that the mere sulphur content alone cannot explain its reputed therapeutic uses.

The therapeutic value of ichthyol is usually explained on the basis of the reducing power of its sulphur compounds. Inorganic sulphates, such as ammonium sulphate, may be dismissed at once, as obviously devoid of reducing power. Sulphonic acid and its compounds, ichthyosulphonates, have never been credited with more than feeble reducing powers, and in fact, we know from their chemical nature that they have no reducing power whatever, being remarkably resistant to oxidizing agents. Sulphon is closely similar in its chemical behavior to sulphonic acid and its compounds, and no evidence has ever been submitted that they have the properties at first attributed to them by Unna, who, in fact, did not work with pure sulphon, or sulphonates, and who abandoned the theory later. Sulphidic sulphur can hardly be considered an active reducing agent, but should one wish for any reason to employ sulphidic sulphur, it would be more rational to use a definite percentage of one of the simple compounds of this type in a simple solvent, rather than such a substance as ichthyol.

No evidence has ever been adduced to show that ichthyol spares protein when it is administered internally; on the contrary, the only paper that we have found which deals with this subject tends to show the reverse; but, in fact, no conclusion can be drawn from the observations of Zuelzer.

REVIEW OF REPRESENTATIVE CLINICAL PAPERS,[12] AND ANSWERS TO QUESTIONNAIRE

The most recent thirty papers which deal with its clinical use have been reviewed. These afford no better basis for the present use of ichthyol than does earlier work, and they furnish no evidence that ichthyol causes the changes attributed to it. In only one case was it used under conditions which permitted of a comparison with the effects of other drugs of known action, and in that instance (a case of psoriasis) Unna concluded that it was useless. Furthermore, it is usually employed in combination with other drugs, and while any favorable action in such cases is sometimes attributed to ichthyol, it is evident from the context that the actions were in reality due to natural causes and to the associated drugs rather than to ichthyol.

While the earlier literature relating to ichthyol is mainly favorable, the later is increasingly unfavorable. And finally, there is a total want of agreement among authors concerning the therapeutic effects of ichthyol.

Frieser[13] and Reitzmann[14] condemn the use of ichthyol as being unsatisfactory. Hallopeau and Weil,[15] and Dawbarn[16] cite cases in which the use of ichthyol is said to have been injurious.

McMurtry[17] says that well known dermatologists stated "that it appeared to them to be absolutely valueless and devoid of action in their specialty at least." He also says that other specialists have expressed somewhat similar opinions. Highman[18] mentions ichthyol but once, and Ricke[19] apparently makes no mention of the use of ichthyol.

9. Zuelzer: Monatschr. f. prakt. Dermat., 1888.
10. Unna, P. G.: Dermatologische Studien **2**: 1886, No. 12; reprint New York Acad. Med.
11. Burnett, I.: Lancet, 1904, p. 1.

12. The following refer to clinical papers consulted:
Mostoff, A.: Allg. med. Cent. Ztschr., 1901, No. 76, p. 885.
Cohn, M.: Deutsch. med. Wchnschr., 1896, No. 26, p. 407.
De Brun: Bull. d. l'Acad. de méd., April 3, 1901, p. 515.
Katzenstein, M.: Therap. d. Gegenw., December, 1903, p. 544.
Allert, I.: Deutsch. Aerzte Ztg., 1912, p. 225.
Kegel, E. T.: Iowa M. J., 1906, p. 227.
Eschle: Heilkunde, 1901, No. 6, p. 297.
Rose, A.: Reprint from Medical Summary, New York Acad. Med.
LeTanneus: Jour. de méd. Paris, Aug. 9, 1896, p. 378.
Barnes, W. S.: M. Rec., Jan. 21, 1911, p. 109.
Bloch, R.: Wien. med. Wchnschr. **40**: 2197, 1890.
Freund, H. W.: Berl. klin. Wchnschr., 1890, No. 11, p. 249.
Rose, A.: Med. Council, reprint New York Acad. Med., April, 1913.
Lorenz: Berl. klin. Wchnschr., 1888, No. 29, p. 587.
Sack, A.: Deutsch. med. Wchnschr., 1897, No. 23, p. 35.
Schmidt, J.: Therap. Gaz., 1886, p. 334.
Zingler, K.: Wien. klin. Rundsch., 1909, No. 11, p. 174.
Schweninger: Charité ann., **11**: 658, 1884.
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QUESTIONNAIRE

A letter was sent to a number of dermatologists and others who might be expected to have had experience with the clinical use of ichthyol, and in this letter cooperation with the committee of the Council which was considering ichthyol was sought. Answers were also requested to these questions: 1. Do you now employ ichthyol in your practice? 2. If you use ichthyol, for what action do you employ it? 3. If you use the drug, can and will you furnish the referee in charge of ichthyol with case reports, demonstrating its value, particularly showing that your good results are due to ichthyol and not to other drugs or to the method of treatment?

Twenty-four replies were received. The writers of four of these letters are rather positive in their views that ichthyol is of therapeutic value. One of them employs it in psoriasis with the expectation of good results, but it is worthy of note that Unna, who is an eminent authority in this field, pronounces it useless in psoriasis, though he was rather optimistic concerning the wide field of usefulness of the drug. The second of the two just referred to states that he employs ichthyol constantly for its antiparasitic, mildly antiseptic and keratoplastic properties. The theory on which was based the belief in its keratoplastic properties has already been discussed, and may be dismissed without further consideration here. Neither of these two letters contains any suggestion as to the mode of action of ichthyol except that just mentioned, and we have already called attention to the fact that we have better antiseptics, and we know of no evidence that it has value as a parasiticide; but, on the other hand, we have numerous effective parasiticides of a simple nature. Unna said, many years ago, that we have better antiseptics.

One writer made some observations concerning its use in erysipelas; and while he believed that these showed that ichthyol has a decided advantage in the treatment of this condition, he states frankly that "observations on erysipelas are notoriously untrustworthy because the disease has such an irregular course, and often heals up with unexpected rapidity, and case reports are therefore not particularly valuable unless comparisons have been made." It is interesting to observe, however, that nearly all of the others who mention its use in the treatment of erysipelas deny that it has any beneficial action in that condition, and one says, "I came to the conclusion that cold water was just as efficacious."

Several condemn its use in rather strong terms. One says that it is useful to furnish a brownish tint to ointments; two mention its internal use, one of these stating that the old ichthyol is used after it has lost its volatile irritating properties "for gastric discomfort attributed to 'gas,'" in which it is mixed with glycerin and given in doses of one drop very largely djluted, the dose being gradually increased. No evidence is furnished for its value except that "so many patients have testified to the efficacy of this treatment that I feel that it really has more than a psychic effect."

The writers of the remaining letters state that they use it occasionally or not at all, and express no positive views in favor of it.

Not one writer makes any attempt to explain its action except where an antiseptic, antiparasitic, demulcent or keratoplastic action is desired.

SUMMARY AND CONCLUSIONS

The early literature relating to ichthyol, thirty of the most recent papers dealing with its clinical use, and twenty-four letters from dermatologists, gynecologists, internists and others have been examined, and from this study the following conclusions are drawn:

1. Ichthyol, by virtue of its chemical properties, belongs to a class of substances derived from petroleum-like products found in various parts of the world.

2. Ichthyol has no reducing power.

3. Ichthyol does not precipitate the protein of the body cells.

4. Ichthyol is at best of feebly antiseptic action.

5. Ichthyol was recommended for numerous diseases because of a mistaken view of its actions, and there is no satisfactory evidence that it has any therapeutic properties other than those of a feeble antiseptic, demulcent, and feeble astringent.

6. It is seldom used except in combination with other agents, and even its warmest advocates are in total disagreement concerning its application.

7. Clinicians often state that they employ it in conditions in which they are unable to determine its value without being at all convinced that it is responsible for any improvement that follows its use.

Correspondence

FROZEN TOXIN-ANTITOXIN REACTIONS

To the Editor:—In view of the widespread newspaper publicity that has been given to the reactions following the injection of frozentoxin-antitoxin mixture in this state, it seems desirable at this time to issue a statement giving the main facts at Concord and Bridgewater, Mass. Two lots of 1 L diphtheria toxin-antitoxin mixture, which had satisfactorily passed all our laboratory and the United States hygienic laboratory tests for harmlessness and purity, were exposed to temperatures of zero or less after distribution. During the recent extreme cold weather, this material, when injected into the arms of children, produced in the majority within twenty-four hours marked constitutional reactions, and a severe local inflammatory reaction. The constitutional reactions have subsided, and the local processes are now showing rapid improvement. Other vials of the same lot numbers, which have not been exposed to low temperatures, were used in hundreds of cases and produced no unusual reactions. Furthermore, in the Bridgewater cases, the same material had been used a week previously for the first injections on the same children, and it was in the week following the first injection that the other vials of the same lot became frozen and caused the reactions. Experiments carried out at our antitoxin and vaccine laboratory show that whereas a short period of freezing does not materially effect this toxin-antitoxin mixture, severe freezing of eighteen hours apparently causes the antitoxin to dissociate from its combination with the toxin and to assume a changed physical stage, the antitoxin becoming more or less insoluble, and the mixture, therefore, becoming toxic. At our request, all the circumstances were investigated by Dr. W. T. Harrison of the United States Public Health Service and by Drs. Bela Schick, William H. Park, Milton J. Rosenau, Hans Zinsser and Edwin H. Place. This statement is made because we have felt that it is desirable to caution physicians against using toxin-antitoxin mixtures that might possibly have been frozen, and also to emphasize the fact that freezing may lessen the antitoxic strength of diphtheria antitoxin and diminish the immunizing potency of other immune serums. In the future, this department will distribute the one-tenth L mixtures. Our confidence in the value of diphtheria toxin-antitoxin in the prevention of diphtheria is in no way altered, and these experiences, distressing as they are, should not cause health officials to abandon the use of this valuable preventive measure.

EUGENE R. KELLEY, M.D., Boston.
Commissioner, Massachusetts State
Department of Public Health.

To the Editor:—At your request, we make the following statement concerning the effort of freezing on the toxin-antitoxin mixtures in the towns of Concord and Bridgewater, Mass.: A preparation of toxin-antitoxin was used in some forty children in January; the reactions were slight and such as were to be expected. During an intense cold spell, a number of vials of the same preparation were solidly frozen. When this toxin-antitoxin was melted and used for further injections, severe local reactions and constitutional distur-

bance followed. This preparation, when tested in the antitoxin laboratory in Boston and in the Hygienic Laboratory in Washington, was found to produce in animals the normal reactions, but, after freezing, became toxic. Other preparations tested in Boston, New York and Washington failed to show any increase in toxicity after thorough freezing. Since this occurrence, investigation has shown that several hundreds of children have been treated with other preparations which had been frozen and thawed. These suffered no harm. After a full investigation, we submit the following conclusions:

1. The results which followed the injection of the frozen and thawed toxin-antitoxin in Massachusetts could not have been foreseen, and in our belief no blame attaches to any one.

2. We recommend, in view of this occurrence, that mixtures containing the minimum practical amount of toxin (one-tenth L. plus dose in an injection) be used. This mixture, we, believe, will be both entirely safe and efficient.

3. This occurrence should be viewed in the light of a discovery, and should in no wise discourage the use of toxin-antitoxin in mixtures for the protection against diphtheria.

4. In considering accidents and occurrences of this kind, we must remember that thousands of children die each year of diphtheria, whose lives might have been saved by the prophylactic use of diphtheria toxin-antitoxin.

George W. McCoy, M.D., Washington;
M. J. Rosenau, M.D., Boston;
William H. Park, M.D., New York.

MAKING BLOOD TRANSFUSION SAFER

To the Editor:—A recent editorial in The Journal (Sept. 29, 1923, p. 1114) sets forth the present status of transfusion accurately. However, I should amend the sentence which says, "There are other occasional systemic 'reactions,' varying from slight malaise to severe chills and febrile symptoms, that may give the operator considerable concern." In view of reports from hospitals and operators of high standing, I should make this read, "There are other occasional systemic 'reactions,' varying from slight malaise to swift death."

Many lives are saved daily by blood transfusion. From this great total of saved lives we must subtract a number, relatively small, which represents the patients who die as a direct result of the transfusion. I feel that these deaths are preventable, and would suggest four safety measures; namely, divided dosage of blood; extreme accuracy in testing for compatibility; care in selection of method of transfusion; employment of a skilled operator.

The first dose of blood should be a small one, if possible. Only in this way can inexplicable deaths be prevented. In some of the fatal cases reported, all known tests had been carried out with great care. Obviously, then, there is need for further investigation of incompatibility of bloods, and for more efficient tests than those now available. Until these are forthcoming, we can give the patient, when time permits, a small preliminary dose of the blood of a carefully tested donor. If no reaction occurs in two hours, the bloods may be assumed, with much greater safety, to be truly compatible. Then such quantity as seems to be indicated may be administered.

In making tests for hemolysis and agglutination, grouping is not sufficient. The donor's blood should always be tested directly against the blood of the recipient. The microscopic method is more sensitive than the gross method, and therefore preferable, in my opinion, though some hold the opposite view.

The choice of method of transfusion plays a part, perhaps not a minor one, in the safeguarding of the recipient. We cannot avoid the conclusion that pure-blood methods are safer than any procedure in which an anticoagulant has been added to the blood. Lindeman's method (*Am. J. Dis. Child.* **6**:28 [July] 1913), in spite of several defects, stands high in efficiency, flexibility and safety. The gravimetric method (a simple vein-to-vein paraffined tube) which I described recently (*New York M. J.* **118**:98 [July 18] 1923) is designed to promote safety by lessening trauma of the elements of the blood. Time and statistics are needed for evaluation of this method.

Every large hospital ought to have at least one man on its staff who devotes himself exclusively to blood transfusion. He should live in, or next door to the hospital, should be young enough to be a swift worker, and old enough to have relinquished all forms of amusement that might call him away from his residence. A clever intern often makes a good transfusionist. Unfortunately, when he completes his term, he is likely to be succeeded by a man with no taste for this work. It is therefore necessary, if uniformly good work is to be done, that the transfusion department be under the constant care of an attending man who will sacrifice himself on the altar of this new and mercilessly exacting specialty.

Tracy L. Fisk, M.D., New York.

DEATHS FROM DIPHTHERIA IN FAMILY OF CHIROPRACTOR

To the Editor:—We have recently had an occurrence in this city which deserves some mention. We have here a chiropractor who has persistently advertised in our daily papers, and flaunted in the faces of the public the fact that he has been here for upward of twelve years. Chiropractors are not recognized by the laws of Missouri, and in certain towns they are arrested and fined for practicing medicine without a license; but in this community it is said to be practically impossible to obtain a conviction. A list of convictions of chiropractors in St. Louis has been given to the prosecuting attorney, and it is understood that he has presented the matter to the grand jury, but so far no action has been taken.

About three weeks ago the wife of this chiropractor became ill with diphtheria. It is said that she begged for a physician, but her husband gave her "adjustments" and assured her that she was getting better. When she was practically moribund, her son, it is said, called in two physicians, who gave her antitoxin, although they pointed out that it was too late for it to do any good. The children were also called into the room on the day that the mother died. A few days after, the son became ill with diphtheria. The father called in two consultants, both chiropractors, one from St. Louis and one from Kansas City, and "adjustments" were again done. When this boy was in dying condition, one of the regular physicians who was called for the mother was asked to see him. He again, in the presence of the three chiropractors, told them that it was too late to do anything, but that he felt it his duty to give antitoxin, as it offered the only possible hope. The boy also died. It is probably needless to add that the antitoxin is charged with having been the cause of death in both cases. One can sympathize with the physicians who were called in; while some of us might have been tempted to refuse to give antitoxin when it seemed evident in both cases that the patients were dying, the honest physician acts on the principle that while there is life there is hope, and tries to save life even though it may appear impossible to do so.

It is perhaps unusual for cases like this to occur in families of chiropractors, where the sufferers could obtain at the earliest moment and without cost the wonderful advantages of spinal adjustments. The question is, Will it teach the people who patronize these cults a lesson?

Mazyck P. Ravenel, M.D., Columbia, Mo.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ACIDOSIS AND INFECTION

To the Editor:—It seems to be generally assumed that in infections there is a tendency to acidosis. I take it that this means an increased hydrogen ion concentration. Is there evidence that this is uniformly true? If so, can it be effectively combated by the administration of alkalis by mouth? Is there any advantage in combinations of salts, such as the citrocarbonate of the Upjohn Company, over ordinary sodium bicarbonate? Does milk of magnesia administered by mouth have any influence on this condition?

S. JUDD BEACH, M.D., Portland, Maine.

ANSWER.—There is evidence that acidosis is frequently present in fever. Whether it is always present or not, available information does not justify us to state. It is probably due to inanition, with increased combustion of fat and diminished combustion of carbohydrate. If this theory is correct, the most rational therapy of the condition would be a diet rich in carbohydrate and of sufficient caloric value to meet the needs of the system. From this it will be seen that alkali is only of secondary importance in antagonizing the acidosis. It merely lessens an effect without removing the cause. Still, cautious alkaline therapy is likely to be of some advantage, as the acidosis may have unfavorable effects in itself. Even if the objections to the prescribing of semisecret proprietaries are ignored, there is no advantage in such complex salt combinations as "citrocarbonate" (Upjohn). The cathartic ingredients, for instance, might be entirely undesirable and unnecessary in some cases, and insufficient in amount in others. Magma magnesiae, administered by mouth, is at once a laxative and antagonizes acidosis. It may, however, be impossible to give enough magnesium oxid to overcome the acidosis without producing excessive purging.

In the normal person, from 5 to 10 gm. of sodium bicarbonate is sufficient to produce an alkaline reaction in the urine; and, if more than 10 gm. is retained, it seems safe to say that a condition of acidosis has existed. If sodium bicarbonate is administered at frequent intervals in quantities just sufficient to make the urine as alkaline as the blood, acidosis cannot exist. The reaction of the urine can be followed closely enough even with litmus paper, a so-called amphoteric reaction indicating that sufficient alkali has been provided; and, if the reaction does not become more alkaline than this, there seems to be no danger of injuring the kidney. Too much alkali may be very harmful, especially in the presence of nephritis.

"WHEN IS GONORRHEA CURED?"

To the Editor:—Relative to the different opinions expressed by different writers in recent communications as to when a patient is cured of gonorrhea, a matter discussed by Dr. B. C. Marantz in THE JOURNAL, January, 12, I would say that, if the method of Johns is employed with prostatic secretion study (as described by me in the *Journal of Urology*, November, 1923), many patients considered cured will be found still to harbor the gonococcus. The method, briefly, is as follows: Prostatic secretion obtained by rectal massage of the gland is collected in a sterile centrifugal tube, and is contrifugalized for one minute. This concentrates the cells and bacteria. The supernatant fluid is poured off, some of the sediment extracted with a platinum loop, and a smear made in the usual fashion, fixed with heat, and stained. By this method I have repeatedly demonstrated the diplococci of Neisser in patients who had been pronounced cured by physicians using a less exact method of microscopic diagnosis.

H. W. E. WALTHER, M.D., New Orleans.

TREATMENT OF HOOKWORM

To the Editor:—What is the best method of treating hookworm in an adult? If thymol is given, how much preliminary purging should be given?

E. K. DISNEY, M.D., Valley Station, Ky.

ANSWER.—Carbon tetrachlorid is at present obtaining such an amount of favorable notice that, unless subsequent experience demonstrates as yet unknown dangers, it may be considered a suitable method. The drug is palatable, requires no preparation of the patient, and, when pure, is apparently relatively nontoxic. The only fatal results so far reported were associated with the use of an impure preparation of the drug. The commercial product is unfit for medicinal use; hence the New and Nonofficial Remedies quality should be insisted on by prescribing carbon tetrachlorid medicinal-N. N. R. The dosage generally recommended is 0.2 c.c. (3 minims) for each year of life, with an adult dose not exceeding 3 c.c. In prescribing, one may order twice the amount indicated for a single dose, and the patient may be instructed to repeat the dose at an interval of fourteen days. It is simply administered from a tablespoon half filled with sweetened water. Taken in a single swallow, it occasions little or no aversion. The dose is administered in the morning on an empty stomach. Though the drug has slight laxative properties, it is usually best to administer Epsom salt two hours afterward, so as to assure prompt and complete removal from the intestines.

When thymol is used, preliminary purgation is generally employed. Some give a full dose of mild mercurous chlorid (from 0.10 to 0.60 gm.) the preceding afternoon; others give a compound cathartic pill about 8 or 9 p. m.; others employ a full dose of magnesium sulphate, as soon as the patient wakes up in the morning. After the bowels have thoroughly acted, the thymol is administered.

BASAL METABOLISM AND THYROID ACTIVITY

To the Editor:—Please help me a little: What effect has atropin on the suprarenals? Does a metabolism rate of from + 15 to + 18 prove increased thyroid activity? To prevent exhaustion of a long overacting gland, should dried gland be administered? An unmarried woman, aged 35, of normal weight, with profound asthenia with melancholia, brown splotches, hyperacidity with constipation and diarrhea, pulse from 60 to 70, systolic blood pressure from 80 to 85, has a metabolism rate of from + 15 to + 18. Bad tonsils have been taken out; teeth are on the way. Suprarenal powder alone is doing very little.

W. T. LANDER, M.D., Williamston, S. C.

ANSWER.—G. N. Stewart and J. M. Rogoff, in 1920, found that a moderate increase in the rate of liberation of epinephrin may be produced by atropin, which in large doses may be preceded by a moderate transient depression of the rate of output. A basal metabolic rate of from + 15 to + 18 would suggest a slight increase in thyroid activity; and to give the patient additional thyroid might make matters worse. Exhaustion of the gland need hardly be feared with such a slight increase of activity, when the great increase in activity, such as occurs in exophthalmic goiter, does not usually lead to exhaustion of the gland. The low systolic blood pressure, profound asthenia, and brown splotches suggest the possible presence of Addison's disease. That suprarenal powder was disappointing is not surprising. In addition to a sufficiency of rest and optimal hygiene, strychnin in liberal doses might be suggested as the most promising remedy. It has been shown that this alkaloid stimulates the suprarenal gland to increased secretion.

TREATMENT OF ERYSIPELAS MIGRANS

To the Editor:—A patient, aged 9, has had four attacks of erysipelas migrans in the last six years. Does a chronic erysipelas exist, or is it just his susceptibility to the disease? Is there an immunizing agent to prevent recurrences of this disease? Has any recent specific or improved treatment been found in the treatment other than streptococcic and autogenous serum, and the regular systemic treatment?

H. M. LEVIN, M.D., Blanchard, Iowa.

ANSWER.—In many persons who have recurrent attacks of erysipelas there can be found a local chronic infection in the nasal cavities or accessory sinuses from which the acute attacks originate. The first effort in preventing new attacks should be directed toward eliminating this focus of infection. Vaccines and serums are of doubtful value during an acute attack of erysipelas. During the late war, interesting observations on the treatment of facial erysipelas were reported by Avata and Woodyatt from Camp Cody, N. M. (THE JOURNAL, Sept. 14, 1918, p. 900). After most known methods, including vaccines, had been tried with no satisfaction, they adopted a method which, while not new, gave very good results. This consisted in the application with a cotton swab or brush of collodion, U. S. P. (nonflexible) so as to form a continuous stripe half an inch wide and from half an inch to an inch in advance of the induration, so as completely to circumscribe the diseased area. The stripe was painted over repeatedly until, when dry, a constricting furrow from one-half to three-fourths inch deep, and unbroken at any point, completely surrounded the diseased area. The erysipelatous induration advanced to the collodion but not beyond. The successful result was ascribed to a complete constriction of the lymphatics of the skin through which the infection travels. If breaks or cracks formed, they were repaired by new applications from day to day. Under this treatment there was marked reduction in the time spent in the hospital, the length and height of the fever were lessened, and the toxic symptoms generally were less.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, April 1. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

CALIFORNIA: Los Angeles, February 18-20. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

CONNECTICUT: Hartford, March 11-12. Sec., Reg. Bd., Dr. Robert Lee Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, March 11. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport.

CONNECTICUT: New Haven, March 11. Sec., Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

IDAHO: Boise, April 1. Director, Mr. Charles Laurenson, Boise.

MAINE: Portland, March 11-12. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 11-13. Sec., Dr. Charles E. Prior, 144 State House, Boston.

MINNESOTA: Minneapolis, April 1-3. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.

MONTANA: Helena, April 1. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

NEW HAMPSHIRE: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.

RHODE ISLAND: Providence, April 3-4. Sec., Dr. B. U. Richards, State House, Providence.

UTAH: Salt Lake City, April 1. Director, Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

Missouri February Examination

Dr. Cortez F. Enloe, secretary, Missouri Board of Health, reports the written and practical examination held at St. Louis, June 6-9, 1923. The examination covered 14 subjects and included 105 questions. An average of 75 per cent. was required to pass. Of the 129 candidates examined, 114 passed and 15 failed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University Medical School		(1923)	88
Chicago Medical College		(1922)	85
Northwestern University Medical School		(1923)	83
Kansas City College of Medicine and Surgery	(1921) 78, (1922) 86	(1919)	75,
Kansas City University of Physicians and Surgeons	(1920, 2) 77, 79, (1923) 92	(1919)	80,
St. Louis College of Physicians and Surgeons	(1920, 2) 76, 78, (1921, 5) 75, 76, 81, 81, 82, (1922, 5) 75, 76, 79, 82, 83, (1923, 3) 75, 76, 77	(1919)	80,
St. Louis University School of Medicine	82, 83, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 87, 88, 88, 88, 88, 88, 88, 88, 89, 89, 89, 90, 90, 91, 91, 92, 93	(1923, 45)	80, 82, 82,
Washington University School of Medicine	(1922, 3) 86, 88, 89, (1923, 33) 84, 85, 85, 85, 86, 86, 87, 87, 87, 87, 87, 87, 88, 88, 88, 88, 88, 88, 88, 89, 89, 89, 89, 89, 90, 90, 90, 90, 90, 90, 91, 94	(1920) 87, (1921)	86,
University and Bellevue Hospital Medical College		(1922)	87
Meharry Medical College		(1921	81
Faculty of Med. Surg. and Pharmacy, Rio de Janeiro, Brazil		(1913)	77

College	FAILED	Year Grad.	Number Failed
Kansas City College of Medicine and Surg.	(1921, 2)	(1920)	3
Kansas City Univ. of Phys. and Surgs.		(1921)	1
St. Louis College of Physicians and Surgeons	(1921, 3) (1922, 2) (1923, 4)	(1920)	10
University of Budapest, Hungary		(1920)*	1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Kansas		(1918)	Kansas
University of Pennsylvania		(1912)	Michigan
Meharry Medical College		(1919, 2)	Illinois, Kentucky

* Graduation not verified.

Michigan October Examination

Dr. B. D. Harison, secretary, Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 9-11, 1923. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 26 candidates examined, 24 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1922, 2)	82.6, 83	
University of Illinois		(1922)	83.3
Washington University Medical School		(1921)	82.1
Meharry Medical College		(1923)	80.8
University of Toronto Faculty of Medicine, Ontario	(1918) 82.5, (1919) 85.5, (1920) 83.6, (1921, 3) 78.5, 81.7, 85.1, (1922, 3) 80.2, 85.1, 85.4	(1910)	88.4,
Queen's University Faculty of Medicine, Ontario		(1921)	79.8
McGill University, Quebec		(1919) 78.2, (1922)	82.4
University of Greifswald, Germany		(1920)*	75
University of Heidelberg, Germany		(1921)*	78.5
University of Kiel, Germany		(1919)	75.7
University of Tübingen, Germany		(1920)*	75.5
University of Budapest, Hungary		(1914)*	77.9
University of Palermo, Italy		(1917)*	77.8

College	FAILED	Year Grad.	Per Cent.
National University, Athens, Greece		(1922)*	67.8
University of Budapest, Hungary		(1911)*	73.9

* Graduation not verified.

Book Notices

ALCOHOL AND PROHIBITION IN THEIR RELATION TO CIVILIZATION AND THE ART OF LIVING. By Victor G. Vecki, M.D. Cloth. Price, $2. Pp. 165. Philadelphia: J. B. Lippincott Company, 1923.

This book is advanced by its publisher as a fair and unprejudiced presentation of truths; and, in his introduction, the author states promptly that he favors the golden middle course so far as relates to the use of alcohol. Dr. Vecki devotes separate chapters to the good and bad sides of the alcohol problem. He quotes freely from medical writers on the subject without, however, differentiating views based on scientific experimentation from statements of opinion. In a chapter entitled "What Has Prohibition Accomplished?" Dr. Vecki cites numerous newspaper clippings as to the evil effects of joy riding, bootleg liquor and prohibition raids. It is his contention that the only ones who have benefited from prohibition have been foreign countries, the professional reformers and the profiteers. He feels that the prohibition laws are irrational, and cannot be adequately enforced. In a special chapter he discusses the various actions taken by the Sections, Councils and House of Delegates of the American Medical Association. Dr. Vecki concludes that prohibition laws will not be effective until the desire for drink is subdued, and that this can be accomplished only by individual social education. He objects to experimenting on the American people, and to depriving them of their right to self-control. Alcohol in moderation, he says, is necessary in old age, and he characterizes as brutality the taking away of alcohol by drastic legal methods. The book presents no new facts concerning the alcohol problem, although it does offer one view of the situation resulting from the enactment of the Volstead Act.

EINFÜHRUNG IN DIE ALLGEMEINE UND SPEZIELLE VERERBUNGSPATHOLOGIE DES MENSCHEN. Ein Lehrbuch für Studierende und Aerzte. Von Dr. Hermann Werner Siemens, Privatdozent für Dermatologie an der Universität München. Paper. Price, $2.90. Pp. 286, with 94 illustrations. Berlin: Julius Springer, 1923.

The fact that a second edition of this monograph has appeared in a little over two years after the first is a striking example of the awakened interest of medical men in the influence of heredity on the occurrence of disease. The last two decades have witnessed the growth of the science of heredity on a sound experimental basis, and the time has come when it begins to be possible to apply this new knowledge to the problems of human pathology. A striking result has been the new recognition of the hereditary basis of numerous diseases, and a growing appreciation of the great importance of heredity in determining or modifying the course of others, all in much more exact terms than was formerly possible. This book supplies in condensed form a statement of the principles of genetics and their most important applications to human problems, together with an extensive bibliography, and is to be recommended as filling a most evident need in medical literature. The last chapters, which consist of a brief outline of the hereditary features of diseases in which inheritance plays an important part, are impressive in indicating how long the list already is, and also, how much need there is for more accurate data concerning all of them. One must cordially subscribe to the hope of the author that medical men will be stimulated to make as many careful and full reports of hereditary pathologic conditions coming under

their observation as possible, for only by the accumulation of such isolated observations can our knowledge of this important field of medicine be made adequate.

ELEKTROTHERAPIE. Ein Lehrbuch. Von Dr. Josef Kowarschik, Primararzt und Vorstand des Institutes für physikalische Therapie im Kaiser-Jubiläums-Spital der Stadt Wien. Second edition. Paper. Price, $2.90. Pp. 312, with 279 illustrations. Berlin: Julius Springer, 1923.

This edition of the monograph on electrotherapeutics, originally published in 1920, has been slightly enlarged; several chapters that seemed too brief in the first edition have been extended, and other chapters have been entirely revised. Several illustrations have been replaced by better ones, and a number of new illustrations have been added. The author considers this volume a textbook rather than a reference book, and presents the more important methods and types of apparatus that he has found of proved value in his own extensive experience. The material is divided into four parts. The first deals with fundamental conceptions of the physics of electricity. The second deals with the technic of electrotherapeutics, taking up in order galvanization, faradization, arsonvalization, diathermy and franklinization. Each of these chapters begins with illustrations and diagrams showing the construction of the various types of apparatus and the physics concerned, and then takes up the detailed use of the apparatus clinically. The third portion of the work discusses the physiologic effects of electrotherapy on the human body in health and disease. The fourth part takes up in a systematic manner the indications for electrotherapeutics, considering, first, the indications for the various types of current and then the indications for use in diseases of the peripheral nerves, brain and cord, in functional and other nerve diseases, and in diseases of the joints, heart and blood vessels, larynx and lungs, digestive organs, genito-urinary organs, skin and sense organs. The work is systematically presented and is well illustrated. It is well indexed, and will be found of value to those interested in a practical presentation of the subject.

A HISTORY OF THE MASSACHUSETTS MEDICAL SOCIETY. With Brief Biographies of the Founders and Chief Officers, 1781-1922. By Walter L. Burrage, A.M., M.D., Cloth. Price, $6. Pp. 505, with illustrations. Brookline, Mass.: Published by the Author, 1923.

The Massachusetts Medical Society is the oldest one in the United States with a continuous existence, being now 141 years old. Its complete history was last written in 1838, when Ebenezer Alden wrote one as the annual address. Dr. Burrage, while looking through the records of the society, found data as to the way in which it was founded, and numerous other facts not yet correlated in any other place. One of the important features of the book is the series of biographies of the fourteen founders of the society, as well as numerous biographies of other noted New Englanders who have taken part in its work. Especially valuable also are numerous illustrations showing progress of the society's building, and photographs, heretofore not available, of physicians who took part in the development. The Massachusetts society has always been one that functioned completely and efficiently. The concluding chapters of this volume describe in detail many aspects of its work, including membership, licensing, publications, the library, discipline and malpractice defense. All of this material is presented in a logical order, and with an interesting style, which makes it exceedingly readable.

BLOOD CHEMISTRY. Colorimetric Methods for the General Practitioner. With Clinical Comments and Dietary Suggestions. By Willard J. Stone, M.D., Attending Physician, Los Angeles General Hospital. Introduction by George Dock, M.D. Cloth. Price, $2.25 net. Pp. 75, with 6 illustrations. New York: Paul B. Hoeber, 1923.

The methods outlined in this book are dependent on the researches of Folin and Wu, Denis, Lewis, Benedict, Van Slyke, Bloor, Myers, Bailey, Whitehorn, Rieger and others. While the original technic of these workers is rather closely followed, in some cases the procedures "have been slightly modified to meet the demands of the clinical laboratory using relatively small quantities of blood." In addition to the methods of blood chemistry, the author has included Folin's method (slightly modified) for the determination of the total nitrogen in the urine, and Folin's method for determination of the titratable acidity of the urine. "For the purpose of ready reference, an outline of the essential facts to be determined in the study of impaired kidney function has also been included, together with dietary suggestions covering the treatment of certain disturbed metabolic states." The introduction by Dr. Dock points out the value of such examinations, and calls attention to the possibility of this work being performed by the physician in his own laboratory. This book should prove of great service to all interested in the general advance of clinical knowledge. The selection of methods is excellent, and their presentation is clear and concise. The clinical comments and the dietary tables should prove very helpful. We can recommend this book to the general practitioner in the hope that it will stimulate an increased interest in the use of such methods in his daily routine work.

HISTORY OF THE GREAT WAR BASED ON OFFICIAL DOCUMENTS. Medical Services. General History. Vol. II. The Medical Services on the Western Front, and During the Operations in France and Belgium in 1914 and 1915. By Major-General Sir W. G. MacPherson, K.C.M.G., C.B., LL.D. Cloth. Price, 21 shillings net. Pp. 510, with illustrations. London: His Majesty's Stationery Office, 1923.

This is the second volume of the medical side of the British medical history of the war. It deals with the medical services of the British Expeditionary Forces in France and Belgium. There are to be three more volumes covering this aspect of the subject. The other volumes on surgery, hygiene and pathology have already been reviewed in THE JOURNAL, and there is to be a volume on statistics. The present volume begins with matters of administration. It then considers medical units in advance areas, on lines of communication, and the medical services with the tanks, labor, and Indian, Portuguese and similar troops. The style of the narrative then changes to a chronological consideration beginning with the period of concentration, the advance to Belgium, the battle of Mons and the retreat from Mons, and, passing on, ends with the battle of Loos. There are numerous maps showing the disposition of medical forces during battle, and photographs of medical troops in service.

FEDERAL INCOME TAXES: PRINCIPLES AND PRACTICE. By E. E. Rossmoore, B.S., Certified Public Accountant. Cloth. Price, $6. Pp. 864. New York: D. Appleton & Company, 1924.

After a preliminary consideration of the history of income tax legislation and the principles guiding the work, occupying approximately a hundred pages, the author presents 356 problems or cases illustrating current practice. These constitute the most valuable part of his presentation of the subject, since the remaining portions of the book are available in various forms. The appendix to the book contains the texts of various laws, national and state, on the income tax. A complete detailed index adds to the value of the volume.

MARRIAGE AND SYPHILIS. A Treatise on Eugenics. By George M. Katsainos, M.D. Cloth. Price, $3. Pp. 162, with illustrations. Boston: Published by the Author, 1923.

In this book, the author presents a combined social and medical consideration of the problem of controlling syphilis in the community. The great defect of the volume is its shallowness, since it discusses no phase of the subject completely. The text is in general too technical for laymen, and is inadequate for the physician. The use of illustrations showing the horrible effects of syphilis, with a view perhaps to deterring the layman from exposure, has been proved to be an inefficient method. It is doubtful, furthermore, whether the paralleling of such illustrations with pictures of sound and healthy children will have any more efficiency in deterring exposure. It is the suggestion of Dr. Katsainos that any one responsible for transmitting syphilis to a child should be punished with the maximum penalties of the law. Unfortunately for this view, syphilis is not a police problem, but a medical one.

PROTECCIÓ A LA DONA GRÀVIDA. Pel Dr. F. Carreras. Paper. Pp. 57, with illustrations. Barcelona, 1922.

This is a plea for social insurance for expectant mothers, along the lines of Couvelaire's dictum, "full medical and social protection for all pregnant women." It is evidently an aftermath of recent European congresses and agitation in Spain for health insurance. To strengthen the argument, the female

organism and its functions are described and weak points emphasized as regards pregnancy and industrial requirements. The laws in different countries are reviewed, and mention is made of several laws of American states, the author being apparently unfamiliar with the Sheppard-Towner law. There are some practical suggestions as to reorganization of maternity services in Dr. Carreras' home town, which should bear immediate fruit. The illustration at the front of the book is a copy of Raphael's famous painting of a pregnant woman.

VERORDNUNGSBUCH UND DIÄTETISCHER LEITFADEN FÜR ZUCKERKRANKE mit 149 Kochvorschriften zum Gebrauche für Aerzte und Patienten. Von Professor Dr. Carl von Noorden und Professor Dr. S. Isaac. Paper. Price, 60 cents. Pp. 112. Berlin: Julius Springer, 1923.

This is the finished product of a manuscript used for many years in von Noorden's clinic. It contains a great deal of valuable information about food in diabetes, both for the physician and for the patient. The arrangement of the tables of food into "majors" and "minors" permits an easy grasp of the main food elements. The detailed discussion of individual foods, of arrangements of meals, of determining iso-equivalent values is excellent. Many valuable recipes are included. This book adds another chapter to the growing story of education with which improved therapy in diabetes is so intimately associated.

PROCEDURES IN NURSING. Preliminary and Advanced. By Annabella McCrae, Instructor in Practical Nursing at the Massachusetts General Hospital Training School for Nurses, Boston. Part 1. Cloth. Price, $1.50. Pp. 261, with 23 illustrations. Boston: Whitcomb & Barrows, 1923.

This is a practical book, replete with suggestions as to the detail of small things in nursing practice. It introduces such matters as sweeping, dusting, making beds, preparing patients for the night, assisting them to sit up comfortably, prevention of bed sores, shampooing, foot baths, charting, enemas and irrigations. A complete knowledge of the suggestions contained in this book means much for the comfort and happiness of the patient.

THE PHYSICAL BASIS OF LIFE. By Edmund B. Wilson. Cloth. Price, $1.50. Pp. 51, with 20 illustrations. New Haven: Yale University Press, 1923.

The Yale University Press presents here the first William Thompson Sedgwick lecture, delivered Dec. 29, 1922. It is a brief consideration of our present knowledge of the cell from a physical point of view. Dr. Wilson believes that we are no nearer than formerly to an understanding of the way in which hereditary traits are woven into the cell system. He does feel, however, that our faith in mechanistic methods and conceptions should not be shaken, but that we should be stimulated to further and more careful study.

OUTLINES OF NURSING HISTORY. By Minnie Goodnow, R.N. Third edition. Cloth. Price, $3 net. Pp. 420, with 117 illustrations. Philadelphia: W. B. Saunders Company, 1923.

This volume is not only a history of the development of nursing as a profession, but also a guide to nursing organizations, magazines, laws and opportunities throughout the world. As a gift to a nurse who is about to begin her career, no more practical book could be found.

A PRIMER FOR DIABETIC PATIENTS. A Brief Outline of Diabetic Treatment, Including Directions for the Use of Insulin, Sample Menus, Recipes, and Food Tables. By Russell M. Wilder, Ph.D., M.D.; Mary A. Foley, Dietitian, and Daisy Ellithorpe, Dietitian, the Mayo Clinic. Second edition. Cloth. Price, $1.50 net. Pp. 119, with 4 illustrations. Philadelphia: W. B. Saunders Company, 1923.

The second edition of this valuable primer incorporates discussions for the use of insulin and the use of high-fat mixtures. More than half the book is composed of tried and satisfactory diet menus and recipes.

STUDIES IN ETHICS FOR NURSES. By Charlotte A. Aikens. Second edition. Cloth. Price, $2.50. Pp. 327. Philadelphia: W. B. Saunders Company, 1923.

The first edition of this book was promptly recognized as a worth while volume on the relationships of the nurse to the hospital community. It preaches the doctrine of helpfulness, tact and consideration in a straightforward, simple manner.

Miscellany

PRELIMINARY REPORT ON SANITATION IN MINES

In a preliminary report, Sayers of the U. S. Public Health Service, who was sent abroad to study health and sanitation in mines, says that silicosis was prevalent in certain groups of miners in every country visited. However, Watkins-Pitchford states that no cases of silicosis developed from Aug. 1, 1916, to May 1, 1923, among 5,234 recruits who passed the initial examination and had become miners on the Rand. In Great Britain, the mortality rate of tin miners, lead miners and flint knappers is high, and compensation is paid to workers incapacitated. The preventive measures in use are:

1. Physical examination of all workers and initial examination to exclude the tuberculous and those with lung conditions which make them susceptible to tuberculosis or silicosis.
2. Ventilation of working places to replace dusty air.
3. Use of methods, such as axial feed water drills, water blasts and sprinkling, which prevent dust from getting into the air or allay it quickly.
4. Blasting between shifts and not allowing men to enter until the air becomes clean.
5. Compensation to workers incapacitated for work due to silicosis.
6. Laws and regulations prescribing proper working conditions.

It has been shown that explosions of dust in mines may be prevented by mixing a portion of incombustible dust, rock dust, with the coal dust. In view of the health hazard due to breathing silicious dust, the question of safe rock dust is much discussed in Great Britain. Exposure of animals to various dusts and their effects have been noted. Mortality statistics of workers also have been carefully studied. On the basis of studies in Great Britain, certain dusts have been found to be relatively harmless, and limestone dust, especially if it contains a percentage of magnesium, is the safest. Shale dusts are used in some coal mines for dusting purposes without apparent harm.

Pneumonia causes many deaths among the natives of South Africa. It was believed that those coming from the tropical climate were susceptible, and a law was passed forbidding recruiting north of 22 south latitude. Watkins-Pitchford believes that importation of recruits from any district increases the pneumonia. Sir Spencer Lister prepared a vaccine from strains of pneumococci found among South African natives, which has apparently lowered the case rate greatly. Some credit probably is due to better sanitary equipment.

Typhoid is present in many districts. The administration of typhoid vaccine by mouth in South Africa has proved most satisfactory, especially among the natives. It is stated that this method causes no reaction similar to that usually following typhoid inoculation.

An examination of 10,228 miners in Australia showed that 6.3 per cent. were affected with hookworm.

In the examination of miners of the Broken Hill mines, about 1 per cent. were found to be suffering from lead poisoning, which was said to be due to breathing dust containing lead salts. Mercury poisoning has been greatly decreased by measures of cleanliness and better ventilation in the recovery of gold in South Africa. It is stated, also, that amalgamation is being replaced by other methods of recovery of gold.

In some districts visited, mining regulations prescribe the maximum temperature of mines. This varies with the length of shift and the country, but is usually between 80 and 85 F. when measured by wet-bulb thermometer for an eight-hour shift. Natural ventilation is found satisfactory only for limited conditions of temperature and mine development, and this only when carefully planned and controlled. Natural ventilation, with auxiliary artificial systems, blowers, small exhaust or pressure fans with metal or canvas tubing, or ventura tube with compressed air jet, may be used to advantage. The ventura tube is receiving a great amount of attention in New Zealand, Australia and South Africa.

Professor Moss of the University of Birmingham states that the addition of sodium and potassium chlorids to the drinking water materially lessens the mascular fatigue and

prevents miners' cramps. Undue fatigue is usually attributed to high temperature, and ventilation and air conditioning are the logical remedies. South African investigators conclude that if the ventilation is to be effective, the air at their temperatures must be carried right up to the working places with a velocity of 60 feet a minute.

In all countries visited, the operators realize that first aid is of definite value. Shift bosses are usually trained, and in some places miners receive instruction. The most systematic training is done in the mines of South Africa. Local, district, provincial, and national first aid contests are held. Oxygen breathing apparatus for rescue and recovery wark is not in general use except in Great Britain. In 1920, the Prevention of Accidents Committee of the Rand Mutual Assurance Company of Johannesburg considered that regulations with regard to rescue apparatus were unnecessary in metalliferous mines of the Transvaal, and that there is but little scope for rescue teams in the collieries, owing to the distance between collieries. It was stated that there is very little danger of underground fires and little to be feared from explosions. Mr. Gray of the department of mines is not in agreement. The Rand Mines, Ltd., intend to establish a central station and train men regularly.

THE DECLINING TUBERCULOSIS MORTALITY AND THE OUTLOOK FOR THE FUTURE

In a recently published symposium on the decline in tuberculosis mortality, Dr. Louis I. Dublin[1] takes issue with the theory of certain geneticists, notably Given, Pearl and Pearson, that a racial improvement in germ plasm is the responsible factor. It has been contended that the disease itself has operated, through the principle of natural selection or survival of the fittest, to eliminate stocks predisposed to tuberculosis by heredity, and so to prevent the continued reproduction of less fit individuals. Dublin supports the more prevalent view that improving economic conditions and widespread education in the fundamentals of hygiene, together with a direct, intensive attack on the disease through medical and social agencies, have been the chief factors in the notable reduction of mortality from tuberculosis. The rate has fallen from nearly 200 in a hundred thousand in 1900 to less than 100 in 1920. Dublin bases his argument on the variation in rates as respects geographic distribution, sex and age, occupation and economic status, shown in both of two large sets of statistics at his disposal, viz., those for the United States as a whole and those for a special but large group of insured lives. It is difficult to explain rates varying from the low levels of 37.1 per hundred thousand in Nebraska, 39.9 in Utah and 43.3 in Kansas, to the high figures of 102.4 in New York, 108.0 in Rhode Island and 140.6 in Delaware, with a theory based on the reaction of germ plasm to tuberculosis. It would be necessary to assume that the differences in death rate represent differences in the innate stocks with various degrees of immunity to tuberculosis in different parts of the country, and that the population in the rural areas is constitutionally better selected than in the cities. According to Dublin, however, the people of our various states are, with few exceptions, altogether too much alike in their inherited qualities and race histories to explain the enormous differences noted. More significant, however, is the fact that the decline has not been uniform throughout the population, but has favored males more than females, white lives more than colored, and certain definite age periods more than others. As Haven Emerson pointed out in the same symposium, the peak of female tuberculosis mortality has moved back from the 25-29 quinquennium to the 20-24 period, while the peak for males has moved forward from 37 in 1911 to 47 at the present time. This change can well be explained on the ground that men, owing to the better working conditions, shorter hours and higher pay prevalent today, have succeeded in postponing a breakdown in health, while the girls and young women, more eager nowadays to seize the opportunities for economic independence, have hastened the development of active disease, which might have remained latent under a less strenuous manner of life. But it is difficult to account for such a change on the basis of evolutionary "natural selection" of germ plasm.

The "environmentalists," Dublin admits, would concede that inherited racial resistance is a factor in the development of tuberculosis. It is a well known fact, exactly as the "geneticist" argues, that such races as the Jews and Italians are more resistant than the Irish, for example. But environment plays its part to color the racial picture. In New York the Jews have a fairly high or a low death rate from tuberculosis according as they live in the congested downtown district or the new, open Bronx-Tremont section. The Irish immigrants of the crowded cities die off twice as fast from tuberculosis as Irish of the same type in their native country.

It is again significant that the same years that experienced the remarkable decline in tuberculosis mortality in America saw in Europe an equally decisive rise, from 302 and 306 per hundred thousand for Vienna and Warsaw to 425 and 840, respectively, and reaching in Belgrade, which passed through a long period of military occupation and food stringency, the horrifying figure of 1,400 in 1918. This tremendous rise must be incidental, argues Dublin, to the war and the miseries resulting from it; for, with the resumption of industry and the return to more nearly normal conditions, the death rates have come back approximately to where they were before the war. Such a rise and fall in a few years' time naturally cannot be explained on a germ plasm basis.

In America, a considerable share is assigned by Dublin to the antituberculosis campaign, which has been effective not only through medical attention and sanatorium management, which Dublin calculates saves at least 6,000 lives annually, and probably many more, but also through educational propaganda and the enlightenment brought about thereby in the relationship between employers and employees, with resultant betterment in economic and hygienic conditions.

There is no reason to expect a marked falling off in the rate of decline. In fact, the years 1920-1923 have witnessed a faster drop; and, were the rate of these years to be continued, tuberculosis mortality for 1930 would be but 7 in a hundred thousand. If, however, the average rate of the last twenty years prevails for seven more, the 1930 rate will be 88. Dublin compromises, and predicts a figure for 1930 of 50 in a hundred thousand, and points out that three American states had a rate below this in 1921, and New Zealand and Australia have already attained it.

Haven Emerson[2] accepts the economic and hygienic basis for the mortality decline. Passing over the fascinating pastime of calculating lives spared or lengthened, and the cost saved in terms of dollars, he pictures the social improvement in terms of salvaged families and permanence of home life. Assembling the experience of four relief and social service agencies, he finds that, while in 1918, 14.65 per cent. of the families aided were tuberculosis families, in 1922 only 9.96 per cent. were so afflicted. A large part of an accepted social burden has been removed, and for the city of New York on the basis of these figures it may be asserted that in these five years 15,876 families have been relieved from the anxiety and fear which tuberculosis brings.

H. E. Dearholt[3] of Wisconsin believes that the remarkable decline in mortality and morbidity rate should not materially affect the course we have begun against the disease, or lessen our obligation to continue it. We still need more sanatoriums, and, with the lessened number of living victims of the disease, are given an opportunity of refining the technic of discovering incipient or "pretuberculous" cases. In the "vocational or continuation schools," attended by children from the stratum of society where economic pressure is greatest, Dearholt sees a convenient, organized group, containing a large proportion of the potentially tuberculous of the next generation, affording an opportunity for early diagnosis, and for steering future working lives, simply and naturally, into channels reducing hazards to the minimum.

In the continuation of the antituberculosis campaign, the initiative, according to Linsly R. Williams,[4] should remain

1. Dublin, L. I.: Nineteenth Annual Meeting, Natonal Tuberculosis Association, 1923, pp. 317-347.

2. Emerson, Haven: Tr. Nat. Tuberc. A., 1923, pp. 348-352.
3. Dearholt, H. E.: Tr. Nat. Tuberc. A., 1923, pp. 353-356.
4. Williams, L. R.: Tr. Nat. Tuberc. A., 1923, pp. 357-363.

with voluntary agencies; but when the value of methods of control is proved, it becomes the duty of the state and its official health agencies to apply such methods. In order, however, that official health activity may be properly maintained the private association should keep the public informed and carry on the propaganda and educational work necessary to attain this object.

Medicolegal

Unregistered Physician in Possession of Morphin

(Pendleton v. United States (U. S.), 290 Fed. R. 388)

The United States Circuit Court of Appeals, Fourth Circuit, in reversing a judgment of conviction of defendant Pendleton of violating the Harrison Narcotic Law, says, briefly, that the count of the indictment on which he was convicted in substance alleged that, while he was a practicing physician and a person required to register under the Harrison Narcotic Law, he had in his possession 2 31/100 grains of morphin, although he had never registered. Quite clearly, this count charged no offense. It did not attempt to set up any violation of Sections 1006 et seq. of the Revenue Act of Feb. 24, 1919. It was obviously drawn under the original narcotic act, which the Supreme Court years ago held did not penalize the mere possession of narcotics. The count gained no added strength from the allegation that the defendant was a practicing physician. As such, he was not required to register unless he dispensed narcotics. There was nothing in the record to show that he did. It followed that the judgment below must be reversed.

Blister, Infection, and Refusal of Lancing

(Western Shade Cloth Co. v. Industrial Commission et al (Ill.), 140 N. E. R. 45)

The Supreme Court of Illinois says that it was a part of the duties of a woman employed by the company to hold taut and straight cloth as it passed over a roller of a machine, which she tended, for waxing cloth for automobile tops and chairs. As a result of holding the cloth with some pressure, or rubbing, a blister developed on her right thumb and broke, and shortly thereafter the thumb became infected. She went to the company's physician, and while she was taking treatment from him he asked her to take a certain course of treatments, including lancing the thumb; but he testified that she refused to follow his directions in part, if not wholly. At the physician's suggestion, the company's nurse went to the woman's home to visit her after she refused to follow the physician's directions; and she told the nurse that her thumb was worse, but refused to allow the nurse to dress it. Afterward she went, at the suggestion of the nurse, to her own family physician, who testified that he found the thumb badly inflamed and in a serious condition, put on antiseptic dressings, and thought an incision should be made to drain the pus, which incision he offered to make, but she would not allow him to make it. At the nurse's suggestion again, she visited the physician acting for the insurance company, and he, after taking a roentgenogram, told her she should have her thumb partly amputated, but, he stated in his report, she refused to have an operation.

The first question presented was whether from the raising of the blister in the manner that it was developed and in the setting in of an infection, with nothing definite to show to what the infection was due or when or where it started, the injury could be considered as having been caused by an accident in the sense contemplated by the workmen's compensation act; whether the circumstances were such that the injury could be traced to a definite time, place and cause, as this court has held necessary, while it has also held that the word "accident" is not a technical legal term, with a clearly defined meaning, but anything that happens without design is commonly called an accident. The court is of the opinion, on the facts found in the record, that the industrial commission was right in holding that the injury was shown to be accidental; and it could be considered a reasonable inference that infectious germs are so prevalent as to justify the assumption that the infection took place on the employer's premises, where the woman continued to work after the blister broke.

However, the evidence did not satisfactorily show that the woman sustained the loss of 70 per cent. of the use of the thumb, and a judgment affirming an award on that basis must be reversed, for additional testimony as to the extent of the injury, as well as to what would have been its extent if the woman had followed the advice of the physicians and allowed the injured thumb to be treated in a proper medical and surgical manner at the time she was advised by the physicians to take such treatment. So far as the court can judge from the evidence, the advice of the physicians should have been followed, and it was reasonable to assume, from the character of the evidence, that if she had accepted their advice and taken the treatments, the injury to the thumb would not have been as serious as it turned out to be.

Information Coming to Medical Examiner

(Myers v. John Hancock Mut. Life Ins. Co. (Ohio), 140 N. E. R. 504)

The Supreme Court of Ohio, in affirming a judgment of the court of appeals that reversed one rendered in favor of the plaintiff on a policy of life insurance, says that a physician as one of a list of eligible physicians was called on by an agent of the insurance company to make the medical examination of the man alleged to have been insured, at the time the man filed his application for insurance. The physician, on the 13th of the month, made the examination and a report to the company, for which he was paid a fee, and thereafter had no other duty or responsibility in relation thereto. The physician was a friend of the applicant for insurance, and as such learned of an attack of indigestion on the 15th, and either on the 19th or 20th learned also of an appendectomy that had been performed on the 18th. The man died on the 24th. His application for insurance was approved by the company at its home office on the 19th, but there was a provision in the application that the contract of insurance would not be complete unless approved while the person to be insured was in the same condition of insurability shown by the application.

The jury was instructed that if it found that the company, after the examining physician had knowledge of the changed condition of insurability, accepted the application, or issued a policy and placed it in the mails, it could not deny liability thereon on the ground of changed condition. But it did not appear that the physician, employed merely for the purpose of making a medical examination and reporting it, had any authority at the time, by act or word, to make or enter into any contract on behalf of the company, and it must therefore follow that he could not by any act or failure to act on knowledge in any manner received by him waive any right of the company. If he could not by his act bind the company, surely he could not by reason of his information with reference to any fact which he was under no obligation to impart to the company, and with reference to which he had no duty whatever, bind the company by reason of any claimed waiver of such facts and conditions, of which the company, or its agent authorized to act in such matters, had no knowledge whatever. The question presented might be determined by the application of a very clear and plain proposition of the law of agency, which is that knowledge of, or notice to, an agent, in order to be binding on his principal, must come to an agent who is authorized to deal in reference to those matters which the knowledge or notice affects, and whose duty it therefore is to communicate it to his principal, and the fact that some other agent employed in reference to different and distinct transactions may have had notice or knowledge will not affect the principal. On both principle and authority, the physician in question was not such an agent of the company that action on the part of the company in approving the application for insurance could be held to have been a waiver of express conditions and stipulations because of the mere casual knowledge and information which came to him.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

27: 1-94 (Jan.) 1924

*Antirachitic Effect of Cod Liver Oil Fed During Period of Pregnancy or Lactation. A. F. Hess and M. Weinstock, New York.—p. 1.
*Blood Pressure in New-Born. M. P. Rucker and J. W. Connell, Richmond, Va.—p. 6.
*Bile Pigments and Bile Salts in Duodenal Juice of Children. R. Taylor, M. Ziegler and A. E. Gourdeau, Minneapolis.—p. 25.
*Two Cases with Unusual Calcareous Deposits. F. F. Tisdall and I. H. Erb, Toronto.—p. 28.
*Treatment of Early Hereditary Syphilis with Intramuscular Injections of Sulpharsphenamin. F. H. Boone, Toronto, and A. A. Weech, Baltimore.—p. 39.
*Vital Capacity as Aid in Diagnosis of Tracheobronchial Adenopathy in Children from Five to Twelve Years of Age. M. G. Wilson, D. J. Edwards and I. E. Liss, New York.—p. 49.
*Congenital Defect of Skin of New-Born. F. L. Adair and C. A. Stewart, Minneapolis.—p. 60.
*Amino-Acid Content of Blood of Infants and Children. G. N. Hoeffel and M. E. Moriarty, Boston.—p. 64.
Review of Literature for 1921 and 1922 on Neurology of Children. A. Strauch, Chicago.—p. 67.

Antirachitic Effect of Cod Liver Oil.—Experiments made by Hess and Weinstock with rats indicate that cod liver oil, when given to the mother during pregnancy, cannot be relied on to protect the offspring from rickets. The active principle of the oil is not excreted in the milk in adequate amount; rats receiving even large doses of cod liver oil were unable to afford protection to their young. Cod liver oil did confer protection when fed to the young during the latter half of the lactating period directly and not through the medium of the mother's milk, demonstrating the essential difference between direct and indirect nutrition. This protective power suggests that the specific factor in the oil can be stored by the young and drawn on in time of need.

Blood Pressure in New-Born.—Rucker and Connell found that the mean systolic pressure at birth is 55 mm. of mercury; the mean diastolic pressure, 40. The systolic blood pressure increases with the age of the infant more rapidly than does the diastolic pressure. Toxic conditions of the mother seem to influence the blood pressure of the child, which is more marked the first day of life. The blood pressure in general, varies directly with the total length of the infant. Neither sex nor color influences the blood pressure.

Bile Salts in Duodenal Juice of Children.—Taylor et al. assert that the duodenal juice of infants contains a concentration of bile salts which varies from 0.2 to 5 per cent. There is a fluctuating but decided preponderance of glycocholic acid, and the content of bile salts in the duodenal juice is not influenced by the presence of celiac disease or by the administration of cod liver oil.

Calcium Deposits in Epiphyses and Skin.—In a case reported by Tisdall and Erb calcareous deposits occurred in the epiphyses of most of the long bones. The patient lived only a few weeks, and had a peculiar deformity of the jaw and limitation of movement in other joints of the body. The calcium deposits in another case were in the skin and subcutaneous tissues. The underlying condition appeared to be either scleroderma or zeroderma pigmentosum. Blood serum calcium and inorganic phosphorus determinations in both cases were essentially within normal limits.

Sulpharsphenamin in Early Hereditary Syphilis.—Twenty-one patients under 1 year of age were treated by Boone and Weech with sulpharsphenamin. Apparently, sulpharsphenamin can be given safely to infants in a dose as large as 20 mg. per kilogram of body weight. The reactions to treatment, either general or local, are very slight. In 55 per cent. of the patients, the Wassermann reaction became negative after six treatments. The symptoms of hereditary syphilis rapidly disappear, and the patient's general condition quickly improves. The ease with which sulpharsphenamin can be administered makes it very useful to the practitioner who is not adept at intravenous therapy.

Vital Capacity in Tracheobronchial Adenopathy.—Diminished vital capacity and roentgenologic evidence of tracheobronchial adenopathy were found by Wilson et al. in 16 per cent. of apparently normal white subjects, and 84 per cent. of apparently normal colored subjects. The authors assert that a reduction of vital capacity of more than 15 per cent. in an apparently normal child indicates the necessity of a roentgenologic examination. A reduction of vital capacity of from 15 to 42 per cent. was found in children with tracheobronchial adenopathy.

Congenital Defect of Skin.—The defect of the skin in the case cited by Adair and Stewart extended as a band 1.5 cm. wide across the anterior part of the abdomen above the umbilicus, and on the lateral sides of the trunk spread upward over the ribs and down to the crest of the ileum. The symmetry of the lesions on the two sides of the body was striking. The most satisfactory treatment consisted in dusting the region with powder composed of equal parts of calomel and bismuth, over which gauze dressings impregnated with paraffin were applied. With this treatment, complete healing occurred without resort to skin grafting.

Amino-Acid Content of Infants' Blood.—In fifty cases ranging from infancy to puberty the average amino-acid blood content was lower than that for adults. A number of observations obtained in children with definite organic disease showed distinct deviations from the normal range.

American Journal of Obstetrics and Gynecology, St. Louis

6: 645-762 (Dec.) 1923

*Placental Circulation. J. Fraser, Montreal.—p. 645.
Blood Pressure Changes Following Delivery. O. H. Schwarz, St. Louis.—p. 656.
Carcinoma of Bartholin's Gland. F. H. Falls, Iowa City.—p. 673.
Pyelitis of Pregnancy. N. W. Vaux, Philadelphia.—p. 681.
Abdominal Hysterotomy Under Morphin-Scopolamin and Local Anesthesia. F. C. Irving, Boston.—p. 688.
Hydro-ureter and Hydronephrosis: Frequent Seondary Finding in Prolapse of Uterus and Bladder. J. Brettauer and I. C. Rubin, New York.—p. 696.
Toxemias of Pregnancy. Chronic Sepsis as Etiologic Factor. J. E. Talbot, Worcester, Mass.—p. 709.
Tubal Patency Tests in Study of Sterility. W. H. Cary, Brooklyn.—p. 723.
Physiologic Loss of Weight in New-Born and Its Control. E. A. Riesenfield, New York.—p. 728.
Radium As Substitute for Hysterectomy. C. W. Woodall, Schenectady, N. Y.—p. 734.
Dental Care During Prenatal Period. W. N. Rowley, Huntington, W. Va.—p. 737.

Placental Circulation.—From his investigations, Fraser concludes that the placenta, like other organs, is possessed of a youth, a maturity, and an old age. In the young organ the conspicuous anatomic features are: (1) The orderly arrangement of the vascular tree from the distribution of the main vessels on the fetal surface to their ultimate destination in the cotyledonous areas. (2) The directness of the arterial and venous supply of the cotyledons. (3) The rapid reduction in bore of the large vessels only following submergence into the cotyledonous stems. (4) The abundant lateral anastomoses shown by injection, also by rapid return of fluid injected into one artery with return through the other. (5) The short capillary bed shown by rapid return of saline through vein when injected by artery, serial sections, and by the fact that it is possible to push over the injection mass from artery into vein. A physiologic senescence is conspicuous in and responsible for many structural changes in the old placenta. This is visible in: (1) Reading and straightening of the subamniotic vessels. (2) The stripping of large trunks of their finer branches. (3) Blind spots in the body of the placenta. (4) Lack of compensatory circulation through diminution of anastomotic network. (5) Marked shrinkage of the cotyledonous circulation with ultimate infarction and cessation of function in some areas. There is thus a close relationship between the healthy and diseased placenta. The ordinary senescence of the mature placenta renders the organ very susceptible to disease processes. The changes that take place in the placenta of growth, maturity and decay follow one another with great rapidity, and to some extent overlap.

American Journal of Public Health, Albany

14: 1-93 (Jan.) 1924

Nuisance Prevention a Hindrance to Disease Prevention. C. V. Chapin, Providence, R. I.—p. 1.
Industrial Hygiene. T. Oliver, Newcastle-on-Tyne, England.—p. 6.
Relation of Foreign Population to Mortality Rates for Boston. W. H. Davis, Washington, D. C.—p. 9.
Requirements for Public Health Nurses in Eighty-Three Cities. M. K. Stack, Hartford, Conn.—p. 22.
Refuse Disposal in Europe. G. W. Fuller, New York.—p. 25.
Tuberculosis Survey of Philadelphia. M. P. Horwood, Cambridge, Mass.—p. 30.

American Review of Tuberculosis, New York

8: 309-396 (Dec.) 1923

*Rôle of Forced Vibrations in Production of Physical Signs. C. M. Montgomery, Niagara Falls, N. Y.—p. 309.
*Influence of Silica Compounds on Experimental Tuberculosis. Biochemistry and Chemotherapy of Tuberculosis. XXIX. M. E. Maver and H. G. Wells, Chicago.—p. 318.
*XXX. Influence of Silica on Strength of Newly Formed Connective Tissue. J. R. Broman, Chicago.—p. 337.
*Autoserum Test for Tuberculosis. K. J. Henrichsen and H. C. Sweany, Chicago.—p. 341.
Specific Serum Antigens in Tuberculosis. H. C. Sweany and K. J. Henrichsen, Chicago.—p. 359.
*Wildbolz Auto-Urine Reaction in Tuberculosis. G. G. Ornstein, New York.—p. 366.
Technic of Chest Roentgenography in Pulmonary Tuberculosis. L. T. Black, Denver.—p. 371.
Pulmonary Aspiration of Particulate Matter and Pulmonary Tuberculosis Produced Experimentally by Aspiration. H. J. Corper, Denver.—p. 386.
Solvent Action of Oleic Acid on Cultures of Tubercle Bacilli. F. A. McJunkin, St. Louis.—p. 393.

Rôle of Forced Vibrations.—Montgomery presents a few of the principles concerned in forced vibrations and applies these principles to the explanation of some of the physical signs encountered in pulmonary and pleural conditions.

Influence of Silica on Tuberculosis.—A review of the literature on the use of silica preparations in the treatment of tuberculosis, human and experimental, leads Maver and Wells to the conclusion that the evidence so far presented is far from establishing that beneficial results are obtained from the use of this element. A reinvestigation of this subject has been carried out by the authors. It was found that administration of an organic silica preparation (SiO_2-casein-metaphosphate) to tuberculous guinea-pigs does not increase the duration of life or modify the extent of tuberculous involvement of the tissues.

Influence of Silica on Tissue Healing.—No evidence was obtained by Broman that silica administration in any way strengthened the healing of tissues.

Autoserum Test Not Specific for Tuberculosis.—Wildbolz' autotuberculin test, as modified by Lanz, was applied by Henrichsen and Sweany to 100 individuals, most of whom were tuberculous; some were normal, while others had diseases other than tuberculosis. Normal people gave uniformly negative reactions. With few exceptions, active tuberculosis gave positive reactions. Active lymph node "contact" patients gave positive results while inactive cases were negative. This, therefore, affords one of the most useful fields of usefulness for the test. Certain diseases other than tuberculosis have been found to elicit the reaction, thus proving that, as used, it is not strictly specific for tuberculosis.

Autoserum Tuberculosis Test Not Specific.—The Wildbolz auto-urine reaction was carried out by Ornstein in twenty-four cases, among which were fifteen cases of active pulmonary tuberculosis, a case of pyopneumothorax and one normal case. The test did not demonstrate a specific antigen in the urine of active tuberculosis. Ornstein suggests that the reaction probably is due to the normal urinary salts.

Annals of Surgery, Philadelphia

78: 693-863 (Dec.) 1923

*Effect of Preoperative Digitalization in Reducing Postoperative Complications. S. H. Geist and M. A. Goldberger, New York.—p. 693.
*Cardiorrhaphy in Acute Injuries: Two Cases. W. R. Smith, Atlanta, Ga.—p. 696.
*Empyema of Pleural Cavity. G. J. Heuer, Cincinnati.—p. 711.
External Duodenal Fistula. R. Colp, New York.—p. 725.
*Extensive Resection of Small Intestine. J. Sarnoff, Brooklyn.—p. 745.
Intestinal Obstruction. G. H. Copher and B. Brocks, St. Louis.—p. 755.
*Malignant Tumors of Testicle in Children. A. A. Kutzmann and T. E. Gibson, San Francisco.—p. 761.
Acute Deferentitis and Funiculitis. A. O. Wilensky and S. S. Samuels, New York.—p. 785.
Transpubic Removal of Prostate for Carcinoma. G. Walker, Baltimore.—p. 795.
Control of Hemorrhage Following Prostatectomy. H. L. Foss, Danville, Pa.—p. 802.
Fracture of Acetabulum with Central Luxation of Hip. S. Kleinberg, New York.—p. 806.
Scleroderma with Gangrene of Fingers. Two Cases. H. Cohen, New York.—p. 814.
*Giant Cell Sarcoma of Femur (Epulis Type) with Metastasis in Femoral Vein. W. G. Turner and T. R. Waugh, Montreal, Canada.—p. 846.

Preoperative Digitalization Reduces Postoperative Shock.—In postoperative shock there is a marked fall in pressure and it seems rational to suppose that, if the pressure level can be maintained, a large group of patients may be spared this complication or at least that it may be distinctly lessened in gravity. It was with these theoretical considerations in view that Geist and Goldberger determined to try the value of some drug that would be a cardiac stimulant and would help maintain the blood and pulse pressure levels. Digitalis was selected. At the time of the publication of their original paper they used two methods, the slow and the rapid method. They have found that the slow method had certain advantages, namely, ease of administration and absence of the digitalis nausea and vomiting, and for these reasons, of the 100 cases of the second series, all but eight were digitalized by the slow method. In the slow method digitan tablets, 1½ grains (0.1 gm.) each, were used instead of the standardized tincture of digitalis. One tablet of digitan per 15 pounds of body weight is the total amount. The first dose is given twenty-four hours before operation and then every two hours until the entire amount is taken. On the morning of operation two more such doses at two hour intervals are given and occasionally twelve or twenty-four hours after operation another dose can be administered. The digitalization effects last from ten to fourteen days, so that if operation is deferred a few days, patients should not be redigitalized. Aside from the improved subjective symptoms and the general better impression of the postoperative convalescence, the pulmonary complications were definitely lessened from 15 per cent. in the nondigitalized cases to 0 per cent. in the digitalized cases. In a series of 100 cases there were 3 per cent. complications, an improvement over the reported percentage by others ranging from 8 to 27 per cent. in nondigitalized cases.

Suture of Heart.—Smith reports two cases of stab wound of the heart. In one case suture was done and the patient survived.

Nontuberculous Empyema.—Experience has convinced Heuer that cure of nontuberculous chronic empyema is quite possible and with a low mortality; the cure of tuberculous empyema remains a problem that still requires serious study.

Resection of Fifteen Feet of Intestine.—Sarnoff reports a case of recovery after resection of 15 feet of small intestine and hysterectomy. A woman, pregnant, began spontaneously to have profuse vaginal bleeding, which continued for five days. A physician emptied the uterus with resulting uterine perforation and prolapse of the intestine. Sarnoff found extensive tearing of the mesentery when he operated. The patient recovered.

Malignant Tumors of Testicle in Children.—Kutzmann and Gibson report the case of a boy, aged 10, who had a malignant tumor originating apparently in the left testis, recurring there after removal, extending along the left spermatic cord to the retroperitoneal lymph nodes, and thence by way of the lymphatics and blood stream to the pleura, lung, diaphragm, and liver. The cells composing the growth are in general embryonic in type, yet they are not without some differentiation as may be evidenced by the tendency to alveolar formation noted in the scrotum, liver and diaphragm, and by the striking resemblance to spindle-cell sarcoma seen in the left pleura and to a less extent in the lungs and lymph nodes. Classification was impossible as the authors were unable to secure the original tumor for examination. It was probably an embryonal carcinoma.

Giant Cell Sarcoma with Metastasis.—A case is presented by Turner and Waugh of primary giant cell sarcoma of the

epulis type in the distal extremity of the femur with metastasis in the wall of the femoral vein. It shows that this tumor, generally held to be local and benign, may metastasize and thus become malignant.

Arkansas Medical Society Journal, Little Rock

20: 125-138 (Jan.) 1924

Encephalitis. E. H. Hunt, Clarksville.—p. 125.
Encephalitis. H. E. Murry, Texarkana.—p. 127.
Encephalitis. Report of Two Cases. P. Murphy, Little Rock.—p. 131.

Boston Medical and Surgical Journal

190: 1-44 (Jan. 3) 1924

Splenomegalias. W. J. Mayo, Rochester, Minn.—p. 1.
General Principles Involved in Prostatic Problem. J. H. Cunningham, Boston.—p. 6.
Obstructions of Posterior Urethra by Congenital Valves. Report of Case. G. H. Hansmann, Boston.—p. 12.
*Cancer: Delay in Its Surgical Treatment. C. C. Simmons and E. M. Daland, Boston.—p. 15.
Cancer of Prostate. J. Barney and A. C. Gilbert, Boston.—p. 19.

190: 45-88 (Jan. 10) 1924

Problems in Diagnosis of Nephritis. W. R. Ohler, New Haven.—p. 45.
Clinical Application of Chemistry of Digestion. C. W. McClure, Boston.—p. 51.
Treatment of Neurosyphilis with Sulpharsphenamin. Thirteen Cases. R. D. Halloran, Boston.—p. 55.
Early Recognition of Clinical Chronic Pulmonary Tuberculosis in Adult. D. Zacks, Middleton, Mass.—p. 60.
Rutland Board of Trustees. A. K. Stone, Framingham Center, Mass.—p. 63.

Result of Delay in Treatment of Cancer.—Five hundred and thirty-nine cases were studied by Simmond and Daland. The average duration of the disease from the time it was first noticed until the patient was admitted to the hospital was 11.6 months. The delay on the part of the patient from the time the disease was first noticed until the first consultation with a physician was 4.6 months. The average delay from the first consultation to the time operation was advised was 2.9 months. In ninety-seven cases of carcinoma of the breast it was 1.8 months. Fourteen per cent. of all patients and 15 per cent. of the carcinoma of the breast patients are known to have received poor advice from the first physician consulted. The average delay on the part of the patient from the time operation was advised until entrance into the hospital was one month. Only 43.6 per cent. of the cases admitted to the hospital were considered suitable for an attempt at cure by radical operation. The operative mortality in all cases in which a radical operation was done was 14 per cent. The operative mortality in cases in which a laparotomy was performed was 34.6 per cent. Sepsis in some form was the most frequent postoperative complication and caused 47 per cent. of the deaths. The authors point out that from this study it would appear that the mortality from cancer is high and the percentage of cures relatively small; much smaller, in fact, than one is led to believe from reading the report of a series of cases. They urge that more be done to educate the public to consult a competent physician for any suspicious tumor, ulcer or other symptom, and to educate a certain group of practitioners to insist on immediate appropriate treatment in any suspicious case. The figures suggest that the educational campaign in regard to cancer carried on during the last few years has had more effect on the laity than on the general practitioner.

Canadian Medical Association Journal, Montreal

13: 863-944 (Dec.) 1923

*Pleural Infections. D. Graham, Toronto.—p. 863.
*Tuberculous Cervical Adenitis in Children. J. D. McEachern, Manitoba.—p. 866.
Radium in Diseases of Women. G. S. Cameron, Petersborough.—p. 872.
Obstetric Causes and Prevention of Stillbirth and Early Infant Mortality. W. G. Cosbie, Toronto.—p. 877.
*Case of Severe Delayed Anaphylaxis. F. B. Gurd, Montreal.—p. 881.
Treatment and General Management of Eczema in Infants in Private Practice. A. Brown, Toronto.—p. 883.
Hereditary Syphilis. E. A. Morgan, Toronto.—p. 887.
*Clinical Value of D'Espine's Sign. T. M. Sieniewicz, Halifax, N. S.—p. 890.
Feeding Problems of Older Children. A. Goldbloom, Montreal.—p. 893.
Suggestion, Ancient and Modern. H. H. Hepburn, Edmonton.—p. 898.
Conditions in Canada in Combat Against Tuberculosis. R. E. Wodehouse, Ottawa.—p. 901.
Ocular Malingerer. A. G. McAuley, Montreal.—p. 903.
Injuries to Eyes from Broken Glasses. A. A. Bramley-Moore, Edmonton.—p. 906.
*Multiple Myeloma. A. E. Walkey, Hamilton.—p. 908.
Hypernephroma of Kidney, Associated with Repeated Attacks of Hematuria and Metastases in Bones. J. T. Ryan, Montreal.—p. 911.
Perirenal Insufflation. F. S. Patch, Montreal.—p. 912.

Bacteriology of Pleural Effusions.—Among forty-three cases of influenzal pneumonia treated in the Toronto General Hospital in 1919-1920, a seropurulent or purulent effusion was present in 72 per cent. The mortality was 46 per cent. The *Streptococcus hemolyticus*, alone or combined with the pneumococcus, or the *B. influenzae*, was present in the pleural exudate in 56 per cent.; in one case the *B. mucosus-capsulatus* was found in pure culture; in the others the pneumococcus alone or combined with the *B. influenzae, Staphylococcus aureus* or the *Streptococcus hemolyticus* or *Streptococcus viridans. Bacillus influenzae, Staphylococcus aureus* and *Streptococcus viridans* always appeared in the pleural exudate secondary to *Streptococcus hemolyticus* or the pneumococcus and were never primary causes of the effusion.

Tuberculous Cervical Adenitis in Children.—McEachern believes that the number of cases of tuberculous cervical adenitis that are transmitted directly from human beings, would undoubtedly be greatly reduced if sufficient hospital and sanatorium accommodation could be provided to take care of persons who are spreaders of infection, or if provision could be made for the care of children from homes in which individuals infected with tuberculosis live. The faucial or pharyngeal tonsil is the portal of entry in the majority of cases of tuberculosis of the lymph nodes in children, and should be removed in every case. Testing for tuberculosis of all cows supplying milk for human consumption should be made compulsory. The sale of unpasteurized milk from any but certified cows should be prohibited. When the disease has not spread beyond the cervical nodes, radical operation with the removal of the portal of entry, if possible, is the surest and safest method of effecting a permanent cure.

Severe Delayed Anaphylaxis.—Gurd cites the case of a man, aged 26, on whom a tonsillectomy was performed. During the afternoon of operation, as some bleeding occurred, the patient received two intramuscular injections of "hemostatic serum" (5 c.c. each). Soon after the injections were made, several pea-sized elevations were noted in the vicinity of the needle puncture. The only aspects of the patient's previous history which might be of interest are that when 7 years of age a severe urticaria followed serum injection for suspected diphtheria. Antityphoid vaccination, at 19 years of age, for military service, was followed by a mild reaction without urticaria. The patient never suffered from hay-fever or other asthmatic symptoms. On the fifth day after operation, while resting quietly at home, there was an onset of itching; giant urticaria developed in different parts of the body, more especially the lips and ears. These symptoms were accompanied by severe weakness and nausea. Severe edema and urticaria with symptoms of shock caused a very stormy four days, the patient's recovery often being in doubt, but with epinephrin, sodium bicarbonate, camphor and calcium lactate he did recover.

Clinical Value of D'Espine's Sign.—D'Espine's sign has been found by Sieniewicz associated with bronchial glandular tuberculosis, with nontuberculous respiratory affections, and in apparently normal children. It has also been found absent in cases of bronchial glandular tuberculosis and the nontuberculous respiratory affections. It was associated with fourteen cases of bronchial glandular tuberculosis and two cases of pulmonary tuberculosis. It was absent in three cases of pulmonary tuberculosis, two cases of tuberculous pleurisy and two cases of bronchial glandular tuberculosis. The frequency of this sign then, can be noted in this group of cases. When compared with the extension of the bronchial sound of the spoken and whispered voice, and of the respiration, as well as the spinal dulness, it was found to be the most constant of these physical signs.

Multiple Myeloma.—The case reported by Walkey presented the following peculiarities: (1) No Bence-Jones protein was found at any time, although searched for repeatedly; (2) the age of the patient, 12 years; (3) fairly extensive metastasis;

(4) high temperature (103 F.); (5) rapid course of the disease; from onset until death, not more than five months in duration.

Journal of Biological Chemistry, Baltimore

58: 363-642 (Dec.) 1923

*Effect of Diet on Content of Vitamine B in Liver. T. B. Osborne, L. B. Mendel and H. C. Cannon, New Haven, Conn.—p. 363.
*Digestion Experiments with Raw White of Egg. II. Digestibility of Unbeaten in Comparison with Beaten Whites. M. S. Rose and G. MacLeod, New York.—p. 369.
*New Sulphur-Containing Amino-Acid Isolated from Hydrolytic Products of Protein. II. Sulphur Excretion After Ingestion. J. H. Mueller, Boston.—p. 373.
Ether Extract of Feces. A. D. Holmes and R. H. Kerr, Washington, D. C.—p. 377.
*Fat-Soluble Vitamins. XVI. Stability of Antirachitic Vitamin to Saponification. H. Steenbock, J. H. Jones and E. B. Hart, Madison, Wis.—p. 383.
Molecular Configuration in Sugars and Acid Production by Bacillus Granulobacter Pectinovorum. H. B. Speakman, Toronto, Canada.—p. 395.
Rhythmic Banding of Precipitates (Liesegang's Rings). H. McGuigan and G. A. Brough, Chicago.—p. 415.
*Growth on Diets High in Carbohydrate and Fat. A. H. Smith and E. Carey, New Haven.—p. 425.
Folin and Wu Blood Sugar Determination. V. E. Rothberg and F. A. Evans, Pittsburgh.—p. 435.
Insulin and Phlorhizin Diabetes. T. P. Nash, Jr., Memphis, Tenn.—p. 453.
*Action of Ammonium Hydroxid and Other Alkaline Compounds on Insulin. E. J. Witzemann and L. Livshis, Chicago.—p. 463.
Animal Calorimetry. XXIII. Influence of Metabolism of Nucleic Acids on Heat Production. M. Ringer and D. Rapport, New York.—p. 475.
*Influence of Insulin on Phlorhizin Diabetes. M. Ringer, New York.—p. 483.
Effect of Injections of Sodium Phosphates and Sodium Hippurate on Excretion of Acid and Ammonia by Kidney. B. M. Hendrix and J. P. Sanders, Galveston, Tex.—p. 503.
*Effect of Chloroform and Phosphorus Poisoning on Carbohydrate Tolerance. M. Bodansky, Galveston, Tex.—p. 515.
Determination of Chlorids in Blood and Tissues. D. D. Van Slyke, New York.—p. 523.
Influence of Irrigation Water on Composition of Grains and Relationship to Nutrition. J. E. Greaves and E.G. Carter, Logan.—p. 531.
Body Fluid of Honey Bee Larva. I. Osmotic Pressure, Specific Gravity, Hydrogen Ion Oxygen Capacity, Carbon Dioxid Capacity and Buffer Value, and Their Changes with Larval Activity and Metamorphosis. G. H. Bishop, St. Louis.—p. 543.
*Autolysis and Insect Metamorphosis. G. H. Bishop, St. Louis.—p. 567.
*Influence of Diet on Teeth and Bones. S. Toverud, St. Louis.—p. 583.
*Estimation of Bile Acids in Urine. C. L. A. Schmidt and J. A. Merrill, Berkeley, Calif.—p. 601.
Distribution of Pentose Compounds in Pancreatic Tissues of Ling Cod (Ophiodon Elongatus, Girard). C. Berkeley, Nanaimo, B. C.—p. 611.
*Inorganic Bases and Phosphates in Relation to Protein of Blood and Other Body Fluids in Bright's Disease and in Heart Failure. H. A. Salvesen and G. C. Linder, New York.—p. 617.
*Relation Between Calcium and Protein of Serum in Tetany Due to Parathyroidectomy. H. A. Salvesen and G. C. Linder, New York.—p. 635.
*Color Test for Chloroform and Chloral Hydrate. J. H. Ross, Montreal, Canada.—p. 641.

Effect of Diet on Vitamin B Content of Liver.—Osborne and Mendel assert that when an adequate supply of vitamin B is lacking in the diet, the store of this factor in the liver tissue, where it is ordinarily found in abundance, becomes largely depleted.

Digestion of Raw White of Egg.—Finely subdivided raw egg whites tend to be utilized more completely than those taken without subdivision; one half the cases showed as good digestion of the unbeaten as of the beaten white, if not better. In only one case was there a marked difference in favor of the beaten white. In twenty-two experiments conducted by Rose and MacLeod with raw white of egg, the average coefficient of digestibility for the protein of the whole ration was 84 per cent. (estimated at 83 per cent. for egg white only); in ten experiments with cooked white, 86 per cent. for both ration as a whole and cooked white only.

Sulphur Containing Amino-Acid.—An amino-acid, which apparently has the formula $C_5H_{11}SNO_3$, has recently been isolated by Mueller from the hydrolytic products of several proteins.

Saponified Cod Liver Oil.—Steenbock, Jones and Hart show that, from the standpoint of growth, calcification of bones, and maintenance of normal calcium and phosphorus content of the blood, the ether extract of saponified cod liver oil is as efficacious as the untreated oil.

Growth on High Fat and Carbohydrate Diet.—According to Smith and Carey, rats making comparable increments of growth in the same time consume nearly the same number of calories from diets high in fat, high in carbohydrate, or from intermediate "balanced" diets. Rats on the high carbohydrate food grew normally throughout the period of observation (151 days), but animals on the high fat ration failed to maintain the normal growth rate after fifty days.

Action of Alkalies on Insulin.—Witzemann and Livshis show that insulin is more or less completely inactivated at room temperature by 0.5 or 0.7 normal ammonium hydroxid in the course of some days, and that its original activity is usually quickly restored on acidifying the ammoniacal solution with hydrochloric acid. It was also found that sodium and potassium hydroxids, even at tenth normal concentration, inactivate insulin irreversibly at room temperature. Sodium carbonate and bicarbonate and disodium phosphate had almost no action on insulin.

Influence of Insulin on Phlorhizin Diabetes.—The argument is brought forth by Ringer that the striking effect of insulin, in correcting the diabetes of a phlorhizinized dog, indicates that phlorhizin transitorily injures the pancreas by preventing the production of the antidiabetic hormone. The use of phlorhizinized dogs is proposed in assaying insulin directly in terms of glucose utilized.

Carbohydrate Tolerance.—A study of carbohydrate tolerance was made by Bodansky in experimental derangements of the liver due to chloroform and phosphorus poisoning. He concludes that the levulose tolerance test is of great value in measuring the degree of liver involvement in experimental animals. However, glucose cannot be used in testing liver function because other factors may influence the tolerance for this carbohydrate. Similarly, galactose is of relatively little value in this regard owing to the marked individual variations in tolerance exhibited by different animals for this sugar. As regeneration of liver tissue occurs in chloroform necrosis, liver function is rapidly restored. Within from six to fourteen days after poisoning with chloroform, the tolerance for levulose in dogs had returned almost to normal.

Autolysis and Insect Metamorphosis.—Bishop reports his attempts to analyze the histolytic changes of metamorphosis in the bee larva in vivo by means of autolytic digestion experiments on certain tissues in vitro.

Influence of Diet on Teeth and Bones.—Histologic and chemical studies made by Toverud on teeth from guinea-pigs fed on a scorbutic diet show that the pulp is so degenerated as to be scarcely recognizable and the normal orthodentin is largely substituted by osteodentin. The chemical picture is also altered. A marked decrease in total ash and calcium oxid and a marked increase in magnesium have been found.

Estimation of Bile Acids in Urine.—Schmidt and Merrill have taken advantage of an observation made by Tengström who found that bile acids may be precipitated when in pure solution by saturating the solution with magnesium sulphate and have devised a method for detecting bile acids in urine.

Blood in Bright's Disease.—In fifteen cases of Bright's disease the inorganic bases, the phosphates, and the plasma proteins have been studied by Salvesen and Linder. In four nonuremic cases in which the plasma protein was normal, the inorganic bases were also normal. In nine cases in which the plasma protein was diminished a marked drop in the calcium content was found, while sodium was normal or slightly decreased, and potassium and magnesium varied in both directions. In two cases of uremia in which the plasma protein was but slightly decreased the drop in calcium was more marked than in the nonuremic cases; a great retention of phosphates was found in these two cases. In five cases of heart failure with dropsy the calcium content of different body fluids (serum, chest fluid, ascitic fluid, edema fluid) decreased proportionately to the protein content.

Blood Serum Calcium and Protein in Tetany.—In two dogs in which the parathyroids were removed and which developed tetany, Salvesen and Linder found the plasma protein constant, while the serum calcium decreased. Tetany occurred when it had passed below 7 mg. per hundred cubic centi-

meter of serum. This is taken as an indication that the calcium decrease in tetany is not due to a primary decrease in the protein bound calcium, but is caused by a decrease in the diffusible (and ionized) fraction.

Color Test for Chloroform and Chloral Hydrate.—The red color produced on heating chloroform, bromoform, iodoform and chloral hydrate with aqueous sodium hydroxid and pyridine is used by Ross to identify these compounds; and, further, to identify substances which produce these compounds under given conditions and in amounts inferior to 0.005 mg. Piperidine and quinoline do not produce this color.

Journal of Comparative Psychology, Baltimore

3: 413-504 (Dec.) 1923

Study of Certain National Differences in Emotional Traits. M. F Washburn.—p. 413.
Comparison of Certain Mental and Physical Measurements of School Children and College Students. H. E. M. Stalnaker, Baltimore.—p. 431.
Study of Sensory Functions in Activation of Sexual Behavior in Young Male Albino Rat. C. P. Stone, Stanford University, Calif.—p. 469.
Performances of Athletes in Coordination Tests. R. M. Dorcus, Baltimore.—p. 475.

Journal of Industrial Hygiene, Boston

5: 315-358 (Jan.) 1924

Surgery of the Spine. R. A. Hibbs, New York.—p. 315.
Relation of Industrial Surgeon to Family Physician. H. G. Giddings, Boston.—p. 319.
Why Should Physician Go Out Into Plant? C. F. N. Schram, Beloit, Wis.—p. 325.
Endicott-Johnson Medical Service. D. C. O'Neil, Binghamton, N. Y.—p. 329.
Physical Examination of Fifty Thousand Garment Workers. G. M. Price, New York.—p. 335.
Economic Viewpoint on Syphilis in Industry. W. L. Hartman, Detroit.—p. 341.

Kentucky Medical Journal, Bowling Green

22: 1-30 (Jan.) 1924

Cooperation of General Practitioner with Surgeon. J. R. Wathen, Louisville.—p. 6.
Acute Septic Pharyngolaryngitis. S. G. Dabney, Louisville.—p. 7.
Present Treatment of Diabetes. R. H. Davis, Louisville.—p. 13.
Diphtheria. L. Botts, Glasgow.—p. 18.
Repeated Uterine Hemorrhage: Hysterectomy: Recovery. L. W. Frank, Louisville.—p. 20.

Minnesota Medicine, St. Paul

7: 1-68 (Jan.) 1924

Treatment of Simple Cases of Diabetes. A. H. Beard, Minneapolis.—p. 1.
Indications for Use of Insulin. E. L. Tuohy, Duluth.—p. 5.
Hypoglycemia. J. B. Collip, Edmonton, Can.—p. 9.
*Treatment of Emergencies of Diabetes. R. M. Wilder, Rochester.—p. 12.
Ear in General Medical Diagnosis. H. I. Lillie, Rochester.—p. 15.
Irritatio Conjunctivæ. E. Boeckmann, St. Paul.—p. 18.
Manifestations of Focal Infections in Respiratory, Circulatory, Urinary, and Gastro-Intestinal Systems in Infancy and Childhood. F. C. Rodda, Minneapolis.—p. 27.
Gastro-Intestinal Motility. J. C. Staley, St. Paul.—p. 30.
Diagnosis of Conditions Associated with Splenomegaly. H. M. Conner, Rochester.—p. 35.
Retroperitoneal Tumor. S. H. Baxter, Minneapolis.—p. 42.

Treatment of Infectious Complications of Diabetes.—The management of infectious complications of diabetes is discussed by Wilder. A patient with partial diabetes may suddenly be converted by infectious processes into one with total diabetes, and during the continuance of the infection, doses of insulin as large as, or larger than, those computed for patients with total diabetes may become necessary immediately and continue necessary until the complicating infection subsides. The advent of an infection always demands not less, but more insulin. Large doses of from 15 to 25 units, may be needed every six hours, so long as the infection continues. It is important to use carbohydrate fairly liberally. Fruit juices are well tolerated, and contain sugar in an especially available form, in large part as fructose. Wilder administers by mouth 100 gm. orange juice with every 20 units of insulin injected. In toxic cases this amount of carbohydrate will satisfactorily buffer the insulin and at the same time supply the sugar necessary to counteract ketosis. Besides the carbohydrate of the orange juice, such soft foods as the patient will accept, especially milk, cream and eggs, are given. However, the total carbohydrate ingestion should not exceed 100 gm. daily. Every effort is made to prevent the accumulation of acetone bodies. Despite fairly large doses of insulin and adequate carbohydrate, an exacerbation of the infectious process may at any time provoke sudden acidosis. If signs of severe acidosis develop, the Kussmaul type of respiration or a carbon dioxid plasma capacity below 20 volumes per cent. of sodium bicarbonate is injected intravenously, giving 500 c.c., and repeating this injection, if necessary. The dose of insulin is reduced and the diet readjusted when the complication has passed.

Nebraska State Medical Journal, Norfolk

9: 1-40 (Jan.) 1924

Borderline Mentality in Community. P. Work, Denver.—p. 1.
*Treatment of Whooping Cough. J. A. Henske, Omaha.—p. 6.
General Management of Tuberculosis. O. M. Gilbert, Boulder, Colo.—p. 8.
Acute Head Injuries. C. A. Hull, Omaha.—p. 13.
Management of Placenta Praevia. J. P. Gilligan, O'Neill.—p. 17.
*Value of Cardiograph in Arrhythmias. A. L. Smith, Lincoln.—p. 19.
*Sodium Iodid Intravenously in Neuritis. L. Stark, Hartington.—p. 23.
Insulin. E. B. Downs, Danville, Ill.—p. 25.
Three Cases of Vincent's Angina. J. B. McPherson, Hastings.—p. 28.
Diagnostic Value of Fontanel in Infancy. C. R. Spicer, Hastings.—p. 29.
*Case of Diabetes with a Peculiar Complication. C. C. Barr and Perry Allerton, Tilden.—p. 30.

Treatment of Whooping Cough.—An experience with serobacterins in eighty-five cases of whooping cough has convinced Henske of their efficacy. No harmful reaction or infection follows the administration of vaccines. No serious complications or deaths were noted. The earlier the vaccines are given the better the results. Hygienic measures and fresh air are important factors.

Value of Cardiographs in Arrhythmias.—Smith emphasizes the fact that this method of cardiac investigation should only be a part of a complete general examination and the results obtained from its use should be weighed with all other facts gathered before a final diagnosis is made.

Sodium Iodid Intravenously in Neuritis.—Stark's experience with sodium iodid administered intravenously has been very satisfactory, as he has been able to get a larger amount of iodid into the patient with less gastric or other disturbance than by any other method. From 30 to 120 gm. were given at a time without deleterious effect.

Diabetes; Hairpin in Bladder.—The complication in this case was a hairpin in the bladder. While trying to relieve the itching and burning of the urethra with a hairpin, the hairpin slipped from the fingers into the bladder. Incidentally the sella turcica was only one-half the normal size.

New Jersey Medical Society Journal, Orange

21: 1-42 (Jan.) 1924

Gastric and Duodenal Ulcer: Treatment. F. F. Carman, Montclair.—p. 1.
"Reform Diet" as Therapeutic Measure in Ophthalmic Practice. G. H. Bell, New York.—p. 6.
Musings of a Stomach. G. K. Dickinson, Jersey City.—p. 13.
Gastro-Intestinal Cases. W. B. Stewart, Atlantic City.—p. 16.
Method of Preventing Removal of Tonsils and Adenoids and Its Usefulness in Treatment of Nose and Throat Defects. A. E. Ewens, Atlantic City.—p. 25.

New Orleans Medical and Surgical Journal

76: 311-354 (Jan.) 1924

Tetanus. P. Graffagnino and J. M. Davidson, New Orleans.—p. 311.
Fracture of Lower End or Base of Radius. J. L. Wilson, Alexandria.—p. 315.
New Method of Treatment for Chronic Suppurative Otitis Media. M. P. Boerbinger, New Orleans.—p. 317.
Treatment of Tineal Infections of Hands and Feet. J. C. Michael, Houston, Texas.—p. 320.
Solitary (Nonparasitic) Cyst of Liver. H. V. Sims, New Orleans.—p. 325.
Knock-Knee and Bow-Leg. H. T. Simon, New Orleans.—p. 328.
Utero-Sacral Ligaments and Their Relation to Descensus of Uterus. J. F. Dicks, New Orleans.—p. 330.
Phenoltetrachlorphthalein Test of Liver Function. D. N. Silverman, New Orleans.—p. 333.
Plea for More Definite Interpretation of Abdominal Pain. A. L. Levin, New Orleans.—p. 334.
Systemic Diseases with Teeth as Primary Cause. C. P. Kelleher, New Orleans.—p. 338.

New York State Journal of Medicine, New York

24: 1-48 (Jan.) 1924

*Epidemic Encephalitis in Its Relation to Poliomyelitis. M. Neustaedter, W. W. Hala and E. J. Banzhaf, New York.—p. 1.
Two Cases of Fulminating Syphilis. E. L. Hunt and L. C. Knox, New York.—p. 7.
*Value of Complement Fixation Test in Gonorrhea in Women. E. D. Barringer and E. Van Bose, New York.—p. 10.
Attitude of Medical Profession of State of New York Toward Venereal Diseases. J. S. Lawrence and R. B. Tewksbury, Albany, N. Y.—p. 13.
*Treatment of Certain Cardiac Irregularities with Quinidin. R. L. Levy, New York.—p. 18.
Lay Advertising and Child Welfare. F. V. Bogert, Schenectady.—p. 21.

Epidemic Encephalitis and Poliomyelitis.—Neustaedter, Hala and Banzhaf assert that poliomyelitis antigen fixes complement in spinal fluids of patients ill with active lethargic encephalitis, hence this test might be regarded as a criterion in the differential diagnosis of obscure cases. It is suggested that positive neutralization tests and fixation seem to constitute two links in the chain of evidence that suggest an extremely interesting possibility that poliomyelitis and epidemic encephalitis are due to variations of the same etiologic factor.

Value of Gonorrheal Complement Fixation Test in Women.—A study of 256 cases of gonorrhea in women has convinced Barringer and von Bose that the complement fixation test in women has a distinct value, which is greatest in the chronic and subacute cases from the standpoint of diagnosis and prognosis. It is of less value in acute cases, from the standpoint of diagnosis, but probably equally valuable from the standpoint of prognosis. The subsidence of complement fixation with the clinical symptoms is proven in this series. The reappearance of a high complement fixation reaction during convalescence suggests an active focus. Persistent negative complement fixation with positive bacteriologic findings is rare. Persistent negative complement fixation with negative clinical and bacteriologic findings is an index of the probability of a cure of gonorrhea in women. The authors suggest as a tentative and entirely arbitrary standard that, in order to pronounce a cure of gonorrhea in women, it is necessary to have these three persistent negative findings over a period of six months.

Quinidin in Auricular Fibrillation.—Levy believes that in a limited number of selected cases of auricular fibrillation, quinidin, intelligently administered, possesses positive virtue. A competent myocardium, absence of conspicuous cardiac hypertrophy and fibrillation of relatively recent onset are useful criteria in the selection of cases suitable for quinidin treatment. In certain individuals in whom premature contractions are a cause of complaint, quinidin to patients with paroxysmal tachycardia, with a view to preventing the recurrence of attacks, has thus far been disappointing.

Philippine Islands Medical Association Journal, Manila

3: 285-360 (Nov.-Dec.) 1923

*Blood Sugar Content of Filipinos. I. Concepcion.—p. 285.
*Significance of Leukopenia with Either Absolute or Relative Lymphocytosis in Severe Infections. Report of Cases. A. G. Sison and C. D. Lara.—p. 291.
*Macroscopic Widal with a Few Drops of Blood. M. V. Arguelles.—p. 298.
Ureteritis and Strictures of Ureter. Six Cases. M. N. Tuason.—p. 300.
Basal Metabolism. Problems of Tropical Medicine. W. D. Fleming.—p. 308.
Medical Economics and Ethics. S. de Los Angeles.—p. 311.

Blood Sugar Content of Filipinos.—The average figure obtained by Concepcion in a series of thirty normal persons was 123 mg. per hundred cubic centimeters of blood. This is slightly higher than the accepted American standard. The percentage of blood sugar found among Americans of long residence in the Philippines was 134 mg.; that of Europeans of long residence in Batavia, 154 mg.

Significance of Leukopenia in Infections.—Sison and Lara have seen three severe cases of infection, all fatal, which in their entire course were characterized by leukopenia with either absolute or relative lymphocytosis.

Macroscopic Widal Reaction.—The method described by Arguelles requires blood that may be obtained through a prick on the finger tip or ear and in an amount sufficient to be contained in a regular Wright tube. The apparatus consists of a (Jena) glass tube of at least 2 mm. inside diameter and one rubber bulb of about 5 cm. diameter, and it works by sucking up the dilutions of serum and the emulsion of typhoid organisms.

Philippine Journal of Science, Manila

23: 407-532 (Nov.) 1923

*Metabolic Mechanism in Beriberi. W. D. Fleming, Manila.—p. 407.
Development of Baguio Plateau. Study in Historical Geology and Physiography in Tropics. R. E. Dickerson, San Francisco.—p. 413.
*Treatment of Hookworm Infestation with Carbon Tetrachlorid. C. N. Leach, F. G. Haughwout and J. E. Ash, Manila.—p. 455.
Report on Creosote as Adjuvant in Leprosy Treatment. J. G. Samson and G. Limkako, Culion Leper Colony.—p. 515.
Comparison of Neotropical and Paleotropical Insect Faunae. C. F. Baker, Manila.—p. 531.

Metabolic Mechanism in Beriberi.—In a series of cases of beriberi, Fleming found the basal metabolic rate to be the same as in normal controls. The respiratory quotients were normal. The percentages of heat obtained from the combustion of protein, fat and carbohydrate, point to a normal utilization of the food eaten. No evidence of the high carbohydrate intake as a disturbing factor was found. Blood sugar values were against the high carbohydrate intake causing a "diabetic tendency." No evidence was found of damage to the excretory power of the kidney in beriberi, either in patients with edema or in those without this symptom.

Carbon Tetrachlorid for Hookworm Disease.—Leach and his associates insist that carbon tetrachlorid always should be given under competent medical supervision. Doses of pure carbon tetrachlorid, computed on the basis of 1 c.c. of the drug to each 5.5 kilograms of body weight, are safe in the absence of certain contraindications mentioned. On this basis, the authors have administered doses ranging up to 12.5 and even 15 c.c., without observing untoward effects of a serious nature. But, this should not be the standard dose. Infection with *Endameba histolytica*, or previous infectious disease of the intestinal tract, is not a contraindication, provided no active process is present. Several men showing pathology of one kind or another were treated on the same basis as other men. Their defects included tuberculosis; splenic and liver enlargement, probably of malarial origin; slight renal disturbance and valvular heart lesions. Moderate alcoholism is not a contraindication to the administration of carbon tetrachlorid, provided liquor is withheld two or three days before and after treatment. Saline purgatives should not be given immediately before treatment, for they apparently reenforce the irritative properties of the drug on the intestinal mucosa. The administration of the drug in divided doses is both unnecessary and undesirable. Carbon tetrachlorid is without effect on any of the common intestinal protozoa. Its administration in protozoal infections of the intestinal tract, therefore, is irrational. The drug should not be given during the course of any infectious disease where the heart and liver are already overburdened by toxemia. This applies particularly to acute intestinal affections, and to abdominal (surgical) conditions, such as peritonitis. The drug should be administered several days before the administration of an anesthetic in order that the liver may entirely recover from the stimulating effects of the carbon tetrachlorid. This is especially important if it is desired to administer chloroform.

Radiology, St. Paul

2: 1-58 (Jan.) 1923

Roentgen-Ray Diagnosis of Pregnancy. L. Edling, Sweden.—p. 1.
Cancer Problem from Radiologic Standpoint. H. Schmitz, Chicago.—p. 7.
Diagnostic Errors Disclosed by Bismuth Paste Injections. E. G. Beck, Chicago.—p. 14.
Protective Measures; Special Reference to High Voltage. A. Soiland, Los Angeles.—p. 22.
Roentgen Ray Vital Factor in Diagnosis of Urologic Lesions. A. H. Peacock and J. T. Dawson, Seattle.—p. 26.
Improved Illumination of Viewing Boxes for Roentgen-Ray Plates or Films. A. U. DesJardins, Rochester.—p. 32.
Localization of Foreign Bodies in Eye. M. J. Hubeny, Chicago.—p. 33.
Two Cases of Recurrent Renal Calculi. A. H. Blank, West Somerville, Mass.—p. 37.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted. Foreign journals are loaned to individual subscribers to THE JOURNAL for a period of three days only. Requests for copies should enclose 6 cents postage. Only one journal will be loaned at one time. Journals are not loaned to libraries.

British Medical Journal, London

2: 1241-1282 (Dec. 29) 1923

*Present Position of Medical Bacteriology. T. J. Mackie.—p. 1241.
Sanitary Advantages of Social Amenities. C. Sanders.—p. 1246.
*Treatment of Tuberculous Diseases: Sodium Morrhuate Injections. P. W. R. Boelke.—p. 1249.
Treatment of Leprosy. T. B. Heggs.—p. 1253.
*Curative Dose of Antimony Tartrate in Schistosomiasis (Bilharzia Disease). J. B. Christopherson.—p. 1254.
Kangri-Burn Cancer. E. F. Neve.—p. 1255.
Treatment of General Paralysis of Insane by Malarial Infection. C. Worster-Drought and H. C. Beecle.—p. 1256.
Serum-Aldehyde Test Applied to Trypanosomiasis. W. C. Spackman.—p. 1257.
Clinical Significance of Scotometry. G. Holmes, M. L. Herburn and others.—p. 1258.

Teaching of Bacteriology.—Mackie points out that bacteriologic knowledge, though already advanced to a prominent place in the forefront of human progress, still presents so many crucial problems that its further advancement must be continuously maintained. Effective teaching is vital to the progress of a science, and the student must be taught in the research atmosphere if he is to gain any real inspiration from his studies. In these respects the universities, as apart from the purely research institutes, present the ideal conditions for the advancement of science. Mackie pleads for the fullest possible encouragement of bacteriologic teaching and research in the immediate interests of medicine.

Sodium Morrhuate in Tuberculosis.—After using the various tuberculins, serum (Marmorek's), different colloidal preparations, sugar injections, etc., sodium morrhuate alone has given Boelke the most uniformly successful results. Sodium morrhuate not only gives results equal to those achieved by tuberculin, but it can arrest tuberculous diseases even when previous tuberculin or sanatorium treatments have failed. Given in correct doses without reactions it neither inconveniences a patient, as is often the case with Koch's treatment, nor are the injections as painful. It is, therefore, in Boelke's opinion, the best method in ambulatory cases; the only reliable remedy in hemorrhagic or feverish cases; a safe remedy, if used correctly, and free from those surprises sometimes following a tuberculin injection.

Dose of Antimony Tartrate in Schistosomiasis.—Thirty grains of antimony tartrate, administered over from twenty-eight to thirty days, according to Christopherson, remains the curative (adult) dose in schistosomiasis. He has seen one case of long standing which required a modified second course after 30 grains.

Indian Medical Gazette, Calcutta

58: 557-608 (Dec.) 1923

Insulin. J. P. Bose.—p. 557.
*Therapeutic Value of Intravenous Injections of Iodin. W. W. Jeudwine.—p. 561.
Vacuum Apparatus for Cataract Extraction. Record of Failure. R. M. Dickson.—p. 571.
*Transmission of Leprosy. E. Muir.—p. 572.
Automatic Fly Proof Latrine Seat. G. G. Jolly.—p. 575.
Treatment of Kala-Azar by Meta-Chlor-Para-Acetyl-Amino-Phenyl Stibiate of Sodium (Von Heyden 471). L. E. Napier.—p. 578.
Encysted Ovarian Sarcoma. Melanotic Sarcoma of Rectum. E. F. Neve.—p. 585.
Two Fatal Cases of Snake Bite. B. Ram.—p. 585.
*Case of Fasciolopsis Buski Infection. S. M. Lal.—p. 586.
*Case of Hernia Obstructed by Mesenteric Glands. C. H. Reinhold.—p. 587.
*Case of Infantile Biliary Cirrhosis. A. F. W. Da Costa.—p. 587.
Case of Auricular Fibrillation Restored to Normal Rhythm. S. C. Bose.—p. 588.
Case of Ocular Paralysis with Glycosuria. J. C. De.—p. 589.

Value of Intravenous Iodin Injections.—Jeudwine has found the clinical results of the intravenous injection of tincture of iodin to a certain extent encouraging. (1) A general hyperleukocytosis is produced; (2) chronic ulcers heal rapidly; (3) incipient cases of tuberculosis of the lung are at all events arrested; (4) cases of chronic bronchitis are very much improved, and (5) cases of corneal ulcer are quickly cured. The benefit of the treatment appears to be due to a rapid hyperleukocytosis which comes on within twenty-four hours after an injection of from 10 minims to 2 c.c. of iodin solution. How much is due to the iodin and how much to the leukocytosis, Jeudwine is not prepared to say, but he thinks that as the leukocytosis persists for some months and as the amount of iodin used is very small, the leukocytosis is the greatest factor in the treatment.

Transmission of Leprosy.—Investigation has led to the belief that healthy human beings living in a healthy climate and sanitary surroundings do not develop leprosy, even when inoculated with it. This conviction has been strengthened by several cases which Muir has seen. The habits of lepers and of those who come in contact with lepers are largely responsible for transmission, especially in house and bed infections; and a hot, moist climate, by leading to scanty protection of the skin by clothing and to irritation of the skin by insects and skin diseases, promotes auto-inoculation. The degree of body resistance is most important and tends to be higher in temperate, healthy climates and in natural, sanitary surroundings. It is lowered by concurrent or intercurrent diseases, constipation, unsuitable diet, pregnancy and many other causes, and it is commonly in connection with one of these predisposing or exciting causes that leprosy first shows itself. Improvement in sanitation, the introduction of dairy farms and market gardens and the development of individualism stamped leprosy out of England.

Fasciolopsis Buski Infection.—Lal's patient had dysentery of fifteen days' duration. He was anemic. The stools contained ova of ancylostoma, trichomonas, and some trematodes resembling *Fasciolopsis buski;* no amebae were found. The patient was treated for ankylystomiasis by Manson's mixture of chloroform and eucalyptus oil. He passed a few ankylostome ova and hundreds of trematode worms, which were later identified as *Fasciolopsis buski.*

Hernia Obstructed by Mesenteric Glands.—Reinhold's patient, aged 14 months, had a large irreducible right-sided inguinal hernia since the age of 4 months. At operation the lowest portion of the ileum, cecum, appendix and ascending colon were recognized in the sac and there were some recent subperitoneal hematomata of the cecum, probably the result of attempts at reduction by taxis. Attempts at reduction failed and the obstacle was found to be a mass of mesenteric glands in the angle between the large and small bowel.

Infantile Biliary Cirrhosis.—Da Costa relates the case of a 13 months old infant who suddenly developed fever and diarrhea. The temperature was irregular and intermittent, ranging between normal and 102 F. The liver was enlarged five finger-breadths below the costal arch. The enlargement was progressive. The spleen was also enlarged. The child died four months later.

Japan Medical World, Tokyo

3: 259-288 (Dec. 15) 1923

Relation of Motor Roots of Spinal Cord and Muscles of Lower Extremity and Also Variation of Plexus Lumbosacralis of Bufo Vulgaris Variat. Japo. T. Abe.—p. 259.
*Two New Alkaloids of Cocculus Diversifolius. K. Ohta.—p. 268.

Two New Cocculus Alkaloids.—*Cocculus diversifolius* D. C. is a plant belonging to menispermaceae, and is called *menispermum diversifolius* or *sinomenium diversifolius.* It is an Oriental plant, which grows wild in the southern part of Japan. The extract of this plant has been used a long time by the Japanese as a diuretic or for rheumatism, chronic gastritis or enteritis. Ohta has found two new alkaloids of this plant, kukolin (Cucolinum) and diversin (diversium). He reports the results of chemical and pharmacologic studies of these substances.

Journal of Laryngology and Otology, Edinburgh

34: 1-32 (Jan.) 1924

*Hitherto Undescribed Function of Vocal Cords. V. E. Negus.—p. 1.
Treatment of Rhino-Laryngologic Tuberculosis by Finsen Light Baths and Its Results. O. Strandberg.—p. 9.
Referred Pain of Nasal Sinus Disease. J. A. Gibb.—p. 15.
Mucocele of Frontal Sinus. W. J. Harrison.—p. 20.
Paralysis of Both Vocal Cords, Secondary to Malignant Tumors of the Mamma. St. Clair Thomson.—p. 22.

Two Cases of Foreign Body (Pin; Metal Pencil Cap) in Lung. T. A. MacGibbon.—p. 23.
Absence of Frontal Sinuses in Woman. T. A. MacGibbon.—p. 24.
Operative Treatment of Ozena. W. M. Millison.—p. 25.

Valve Function of Vocal Cords.—Negus advances the hypothesis that primarily the vocal cords were valves. The production of sound is a subsidiary function of the larynx, therefore, the designation vocal cords, as applied to valvular inferior thyro-arytenoid folds, is a misleading one. During efforts in which the forearms of an animal are moved by the lower fibers of the pectoralis major, it is necessary that the thoracic walls should be fixed; secondly, this entails that air must be imprisoned in the thorax; and thirdly, that sphincteric muscular action is not sufficient to control the air inlet under diminished or increased pressure. Negus assumes, therefore, that valvular laryngeal action is brought into play, and that, as in practically all animals, the only type of valve is one that can prevent entrance of air into the lungs, the air imprisoned in the thorax must be in a state of reduced pressure.

Journal of Neurology and Psychopathology, London

4: 205-298 (Nov.) 1923

*Malignant Spheno-Occipital Chordoma. J. LeF. Burrow and M. J. Stewart.—p. 205.
*Ecchordosis Physaliphora Spheno-Occipitalis. M. J. Stewart and L. LeF. Burrow.—p. 218.
*Syphilis as Etiologic Factor in Mongolian Idiocy. D. O. Riddel and R. M. Stewart.—p. 221.
*Intracranial Pressure Changes During Experimental Convulsions. M. E. MacDonald and S. Cobb, Boston.—p. 228.
After-History of Cases of Epidemic Encephalitis. Changes in Conduct. F. C. Shrubsall.—p. 236.
*Uveo-Parotitic Paralysis. H. J. MacBride.—p. 242.

Malignant Spheno-Occipital Chordoma.—Burrow and Stewart report the case of a man, aged 30, who suffered for three years from headache, vomiting, unsteadiness of gait, failing vision, and weakness of the limbs, especially the right arm. Examination revealed optic atrophy in both eyes, paresis of the third, fourth and sixth cranial nerves on the left side, rigidity of the neck, moderate increase in the tendon jerks, and double extensor plantar responses. Death ensued from respiratory failure. A large tumor springing from the clivus blumenbachii, compressing the optic tracts, crura cerebri and pons was found postmortem. Histologically, the tumor had the characters of a chordoma of low malignancy.

Spheno-Occipital Ecchordosis.—In a series of 200 specially investigated necropsies, Stewart and Burrow found three examples of spheno-occipital ecchordosis, a rate of 1.5 per cent. In each case, the little gelatinous nodule arose from the middle line of the clivus, about half an inch behind the posterior margin of the pituitary fossa, and projected through an aperture in the dura mater. There was adhesion to the basilar artery, and in two cases the nodule was torn across in removing the brain from the skull; in the third it separated from the bone and adhered to the artery in its entirety. The first (and largest) specimen was from a woman, aged 59, who died of advanced polycystic disease of the kidneys and liver; the second specimen, much smaller, was from a man, aged 71, who died of pyemia following suicidal cut throat. He was suffering at the time from advanced silicosis and phthisis. The third specimen was also very small in size, and was from a woman, aged 60, who died of cancer of the throat.

Mongolian Idiocy Not Form of Congenital Syphilis.—Investigations made by Riddel and Stewart have failed to substantiate the contention of Stevens that mongolian idiocy is a form of congenital syphilis, but they seem to confirm his conclusion that the cerebrospinal fluid of the Mongol has the property of precipitating solutions of colloidal gold in the syphilitic zone. At this juncture the authors consider it unwise to conclude that syphilis plays no part in the origin of this disease.

Intracranial Pressure Changes During Convulsions.—In a series of experiments MacDonald and Cobb observed that during thujone convulsions there is an initial fall in the cerebrospinal fluid pressure just preceding the onset of the attack, and a rise in pressure during the fit. Coincident with the fall in pressure there is blanching and retraction of the cortex, followed by marked congestion and bulging. The cerebrospinal fluid pressure follows, in general, the curves of the peripheral venous and arterial pressures. There is some clinical evidence that similar changes take place during human epileptic convulsions.

Uveo-Parotic Paralysis.—The cardinal features of MacBride's case were: (1) Bilateral but asymmetrical inflammation of the eyes in the form of uveitis, conjunctivitis, coupled with the subjective appearance of a shadow, first in the right and subsequently in the left eye, in the latter instance coinciding in time more or less with the facial paralysis; (2) bilateral, symmetrical and synchronous parotitis; (3) involvement of certain cranial nerves producing right, and later left, facial paralysis; in addition, there was slight involvement of the fifth and tenth cranial nerves. Negative features of the case were the absence of definite peripheral neuritis, apart from the cranial nerve involvement. An interesting point in the case was the curious variations of body temperature. Weekly rises took place, the highest being 101 F.

Journal of State Medicine, London

32: 1-50 (Jan.) 1924

History of Royal Institute of Public Health.—p. 2.
Causes of Fur Dermatosis. R. P. White.—p. 16.
Milk and Tuberculosis. W. Buckley.—p. 25.
Experiences in Treatment of Amebic Dysentery During War. T. H. Oliver.—p. 34.

Journal of Tropical Medicine and Hygiene, London

26: 361-366 (Dec. 15) 1923

*Unusual Case of Vitiligo in Native of Sudan. R. G. Archibald.—p. 361.
Bifid-Tailed Cercariae in Burnupia. F. G. Cawston.—p. 363.

Extensive Vitiligo.—In the comparatively short period of three years an extensive and, in areas, complete depigmentation of the skin of Archibald's patient occurred, and also pigmentation of portions of the hair of the scalp, axillae and pubis. The depigmentation was unassociated with constitutional disturbance, and laboratory investigations failed to elucidate the exciting cause. It was associated with histopathologic changes which consisted, in the main, of atrophic changes of the cells of the stratum granulosum and rete mucosum, together with a diminution or entire loss of pigment in the usual pigment bearing areas of the skin.

Lancet, London

2: 1385-1428 (Dec. 29) 1923

*Parkinsonian Syndrome in Lethargic Encephalitis. I. Mackenzie.—p. 1385.
*Immunity Reaction in Scarlet Fever. W. Mair.—p. 1390.
Immunotransfusion. L. Colebrook and E. J. Storer.—p. 1394.
*Treatment of Liver Abscess by Aspiration. A. R. Neligan.—p. 1398.
*Rare Form of Congenital Cardiac Abnormality. E. F. Willock.—p. 1399.

Organic Behavior in Parkinsonian Syndrome.—In the parkinsonian syndrome the outstanding features of organic behavior are the attitude of the patient, the muscular rigidity, and the impediment of voluntary movement especially of a rotatory character. In the absence of evidence of involvement of the corticospinal tracts, Mackenzie says, attention is attracted to the complementary proprioceptive system. Examination of the vestibular apparatus shows that in a proportion of cases there is evidence of interference with the normal processes of somatic equilibration. The extent of abnormal reaction to the caloric and rotation tests seems to bear some relation to the degree of rigidity.

Immunity Reaction in Scarlet Fever.—Mair thinks it is likely that the Schultz-Charlton reaction is a toxin-antitoxin phenomenon. The rash and other changes in the skin are due to a scarlatinal toxin which has entered into combination with tissue cells; among the affected cells are those contractile elements which have been shown to exist even in capillary blood vessels and to the function of which the normal tone of the capillaries is due. The toxin interferes with the function of these cells and a loss of tone of the capillaries results in the erythema and exudative phenomena of scarlatina. The serum injected, when it gives a positive reaction, is supposed to contain an antitoxin which is able to dislodge and neutralize the toxin fixed in the cells, and so to restore their normal function in the area affected. The period of delay, from twelve to twenty-four hours, in the appearance of the reaction, is no doubt due to the fact that the toxin is attached

to the cells, and some time is required for its neutralization. When the rash fades in a normal manner, the mechanism is probably different as this occurs long before any antitoxin can be demonstrated in the patient's blood.

Treatment of Liver Abscess by Aspiration.—There is no doubt in Neligan's mind that, the aspiration treatment is preferable to open operation in every way for the majority of liver abscesses. Indeed, except in an occasional case—such as one cited—to open a liver abscess is as much to be avoided as to open a tuberculous abscess. The exception mentioned was an abscess in the epigastric or hypochondriac regions which presented no definite evidence of having formed adhesions with the parietes. It was considered safer to incise the abdominal wall, pack off the peritoneal cavity, and drain.

Rare Congenital Cardiac Abnormality.—In Willock's case the interventricular septum was complete, showing no defects at all; the left ventricle communicated only with the left atrium, of which chamber it was merely a recess; and the aorta and pulmonary artery both sprang from the conus arteriosus of the right ventricle. The infant lived three months. It was blue, dyspneic and poorly nourished.

1: 1-58 (Jan. 5) 1924

*Clinical Diagnosis of Carcinoma of Breast. W. H. Battle.—p. 1.
*Pneumonia and Its Complications. W. Broadbent.—p. 6.
Pneumococcal Infections: Bacteriologic Aspect. J. H. Dible.—p. 8.
Serum Treatment of Acute Pneumococcus Infections of Respiratory Tract. G. J. Langley.—p. 11.
*Diabetic Coma with Anuria. C. G. Imrie and E. F. Skinner.—p. 14.
*Internal Secretion of Testis. K. M. Walker.—p. 16.
*Schistosomiasis in China. E. C. Faust.—p. 21.
Development of Modern Antimalaria Campaigns. M. E. MacGregor.—p. 24.

Diagnosis of Breast Cancer.—Battle insists that every patient who complains of something wrong with the breast must be examined thoroughly. Most mistakes are the result of imperfect examination. Much will depend on the absence of local signs of carcinoma, judging by the duration of the disease and the size of the swelling. It is advisable to explore small swellings (especially after the age of 30) about which there is doubt. An incision into or through it, should show, even in small malignant ones, a cartilaginous resistance to the knife, a hard edge, a cupping of the surface, on which there is the appearance of the unripe pear. The fundamental sign (Quervain) is "the movability of the tumor in relation to the rest of the breast tissue," the duration of the growth is also importance.

Treatment of Pneumonia.—Broadbent says that a vaccine, if of the right type of pneumococcus and the correct combination of germs, may be very useful, if given early in the disease; but it is not safe in the very toxic cases with low temperature, as the negative phase may be too much for the patient. After the second day vaccines are not likely to be useful, since pneumococci are then usually circulating in the blood, and, if live pneumococci going through the glands will not produce antitoxin, it is unlikely that dead ones will. Acetylsalicylic acid is undoubtedly valuable, but the doses should not be too large. A case is cited in which just after the crisis, with normal temperature, intense dyspnea supervened. There were no signs of fluid in the chest, and the dyspnea was suggestive of the air hunger of diabetes. The patient had been given large doses of acetylsalicylic acid and it was concluded that it was a case of acidosis. Sodium bicarbonate by mouth and rectum stopped the dyspnea in a few hours and the child made a normal recovery. Quinin is also helpful, especially in postinfluenzal cases. Broadbent has had good results with a cresote and iodid mixture, but patients dislike it. Ipecac and iodid may be useful in loosening expectoration. Oxygen should always be kept ready. As a sedative at night Dover's powder is one of the best. In cases of intense poisoning Warburg's tincture is very valuable, given by mouth or rectum, besides being a bactericide, it is a strong stimulant. It must be given in an alcoholic solution since water precipitates the resins and destroys its efficacy. Hyperpyrexia should be treated by ice sponging or packing, and by large doses of Warburg's tincture. In the early stages of lobar pneumonia, if there are signs of overdistension of the right side of the heart, such as duskiness of the face, and marked epigastric pulsation, six leeches over the site of the pneumonia will have good effect. If the puse rate is above 100, digitalis should be given regularly, but not in very large doses, and if up to 120, hypodermic injections of strophanthin should be given. Camphor, hypodermically, is also very useful.

Insulin in Diabetic Coma.—A case of diabetes mellitus in coma, associated with complete anuria, provided Imrie and Skinner the opportunity of observing the action of insulin on the intermediary metabolism in diabetes under conditions where the excretory function of the kidney was in total abeyance, and therefore playing no part, in so far as that function is concerned, in the regulation of the chemical composition of the blood. These observations reveal what marked changes in the blood may be effected, independent of renal excretion when insulin is administered in diabetes, and show that the toxemia associated with total suppression of urine does not inhibit the action of insulin as do certain toxemias, especially those of pyogenic origin.

Internal Secretion of Testis.—The testis, through its internal secretion, exerts an important influence on the development of secondary sex character, but Walker concludes it acts as a stimulus to their growth rather than as the source of their origin. The internal secretion of the testis is formed not by the interstitial cells but by the cells of the tubules. The interstitial cells store up nutritive material for the use of the tubules, their function being trophic rather than secretory. If the internal secretion of the testis is only one of the factors regulating the development of the secondary sex characters, too much must not be expected of treatment by orchitic extracts or by testicular grafts in cases of eunuchoidism in which deficiencies in the rest of the endocrine system exist. Moreover, if the interstitial cells do not form the internal secretion of the testis, the observation that they increased in number after the operation of vas ligature cannot be taken as proof that the output of sex hormone has been correspondingly increased. In other words, if the function of the interstitial cells be trophic rather than secretory, the arguments in favor of Steinach's operation that are based on the histology of the testis after ligature fall to the ground.

Schistosomiasis in China.—Faust states that schistosomiasis japonica has a wide distribution throughout the Yangtze Valley, but is particularly well established in around Soochow, Kiukiang, Tsaoshih, Wuchang, Yochow and Changteh. It has been located in isolated districts on the central Szechuan plain, in southern Chekiang, at Foochow, above Swatow, and on the North River above Canton.

Tubercle, London

5: 153-200 (Jan.) 1924

*Infection of Guinea-Pigs by Conjunctival Instillation of Tubercle Bacilli. S. L. Cummins.—p. 153.
*Local Treatment of Acute Tuberculous Disease of Hip Joint and Vertebrae. C. L. Pattison.—p. 162.
Coordination of Measures for Control of Pulmonary Tuberculosis. H. H. Thomson.—p. 167.

Conjunctival Instillation of Tubercle Bacilli Causes Infection.—The outstanding point of clinical interest in the experiments of Cummins is that the course of the disease varied according to the dose, being rapid and acute in animals receiving the more concentrated emulsions of tubercle bacilli; and taking a chronic course in those in which dilute instillations were employed. These experiments also emphasized the sharp contrast between the type of disease induced by subcutaneous inoculation and by conjunctival instillation of the same strain of tubercle bacillus in guinea-pigs. The subcutaneous inoculation of about 2,000 bacilli led in one animal to death in eight weeks and in another to death in ten, whereas the conjunctival instillation of a dose more than 100 times as great produced a more chronic illness, the animal surviving to the twenty-fourth week. The period of survival, seemed to vary inversely with the dose when infection was produced through the natural channel of the conjunctiva, while there was no appreciable variation in the time of survival after subcutaneous inoculation with such widely separate doses as 2,000 bacilli and 2,000 million bacilli. It appears that perconjunctival infection is of much greater delicacy which is capable of application, in many directions, for the elucidation of tuberculous infection and resistance.

Local Treatment of Bone and Joint Tuberculosis.—Immobilization and prevention of muscular spasm are employed by Pattison in these cases. Directly the spasm of the muscles has diminished and the limb is in a good position, and if there is no sign of abscess formation, the limb is fixed in a plaster-of-Paris splint. Tuberculous abscesses are treated by aspiration with or without the injection of so-called modifying liquids.

Annales de Médecine, Paris

14: 445-543 (Dec.) 1923

Atrophic Heart and Arrhythmia. Nanta and Riser.—p. 445.
*Sodium in Dropsy. R. Hausknecht.—p. 451.
*Creatinin in the Blood. P. Fonteyne and P.Ingelbrecht.—p. 470.
Vegetative Neuroses. R. Porak and P. Missao.—p. 501.
*Ovarian Treatment of Goiter. E. Coulaud.—p. 517.

Sodium in Dropsy.—Hausknecht's observations confirm the view that sodium, and not chlorin, is the essential element in the production of edema. Potassium chlorid is a diuretic. Potassium carbonate causes a much increased elimination of chlorin without notably diminishing the weight of the subject.

Creatin and Creatinin in the Blood.—Fonteyne and Ingelbrecht examined the creatin and creatinin content of the blood in 100 healthy and sick subjects. They found that the coefficient of secretion of creatinin remains longer intact than Ambard's ureosecretory coefficient. The amount of creatinin in the blood is comparatively independent of the diet. In some affections of the kidney, the amount of creatinin in the blood was much higher than might have been expected from the urea figures. In other cases, it was lower.

Ovarian Treatment of Goiter.—Coulaud reports good results in 94 out of 100 cases of goiter treated with ovarian extracts. He administered the powder continually for three months, by mouth, and reduced the dosage later.

Archives de l'Institut Pasteur de Tunis

12: 273-394 (Dec.) 1923

*Chancroid. J. Reenstierna.—p. 273.
*Specific Diagnosis of Hydatid Cyst. T. Thiellé.—p. 313.
Trematodes in Animals in Tunis. C. Joyeux.—p. 328. Cont'n.
*Pigment-Forming Streptococci. P. Durand and P. Giraud.—p. 339.
Hydatid Cysts in Tunis. F. Dévé.—p. 353.

Serologic Diagnosis and Treatment of Chancroid.—Reenstierna brings down to date the account of the research on the streptobacillus of soft chancre done at the state bacteriologic laboratory and the clinic for venereal diseases at Stockholm, the Pasteur Institute at Tunis and the clinic for venereal diseases at Rio de Janeiro. The Ducrey bacillus is hard to cultivate, but an antiserum has been made from it containing the active antibodies and a temperature-raising agent (killed typhoid bacilli) to enhance its therapeutic efficacy. A number of typical cases are described out of the 153 with swollen lymph glands in the vicinity given this serotherapy. In one case a chancroid infection of thirteen months' standing, and still in full activity, healed over in a few days after two injections of the antiserum, supplemented with moist heat. In a case of extensive serpiginous chancroid treated for two and a half years with the usual methods, without relief, the lesions healed over after a single subcutaneous injection of 20 c.c. of the antiserum, preceded by the surgical toilet of the region, the edges cut away and the lesion rinsed with a 2 per cent. solution of copper sulphate. The antiserum is obtained from immunized sheep. It serves also for a diagnostic skin reaction: A positive response seems to indicate without fail an existing or previous infection with the Ducrey streptobacillus. The response was positive in all but 8 of 142 patients presenting soft chancres, and in these negative cases the lesions proved to be the work of staphylococci in 7, and of syphilis in the other case. He has applied this skin test to 449 persons in all, including 20 young children. In the 229 presumably healthy controls, there was no reaction in 240, and the dubious response in 4 became negative later. The group of 5 apparently conflicting responses included 4 prostitutes and a male mulatto—their alleged freedom from preceding venereal disease is questionable. Several colored plates are given.

Differential Diagnosis of Hydatid Cyst.—Thiellé states that in her extensive experience with the Weinberg method of diagnosing echinococcosis by the skin reaction to the fluid from a hydatid cyst, she has never obtained a positive response in the absence of echinococcus infection. The fluid should not be heated. Fluid from a human cyst or a cyst in a hog is more active than from cysts in cattle.

Pigment-Producing Streptococci. — Durand and Giraud found that 8.8 per cent. of the hemolytic streptococci examined produced pigment when cultivated in mediums containing starch and no oxygen.

Archives des Maladies du Cœur, etc., Paris

16: 841-896 (Dec.) 1923

*The Serum in Cancer and Leukemia. J. Sabrazès and L. Muratet.—p. 841.
Electrocardiography in Heart Block. Veil and Codina-Altès.—p. 847.
Arteriosclerosis and the Sympathetic. Laignel-Lavastine.—p. 855.
Tricuspid Stenosis. A. Oigaard.—p. 859.

The Serum in Cancer and Leukemia.—Sabrazès and Muratet confirm the limits of Botelho's serореaction in cancer. It is positive in about 75 per cent. such patients. It is also frequently positive in chronic myeloid leukemia, typhoid, Banti's disease and in pregnancy. Botelho mixes equal parts of fresh serum and of a 0.75 per cent. solution of sodium chlorid. One half c.c. of this dilution is mixed with 2 c.c. of a solution containing 5 gm. of citric acid; 1 c.c. of commercial formaldehyd, and 100 c.c. of normal saline (Cabanis and Foulquier use a 5 per cent. solution of lactic acid instead). After mixing, he adds 0.7 c.c. of the following solution: iodin, 1 gm.; potassium iodid, 2 gm.; water, 210 c.c. Turbidity after standing indicates a positive reaction. A negative serum remains clear even after a further addition of 0.2 c.c. of the iodin solution. They prefer with Wilbouchevitch to use distilled water instead of normal saline in the formaldehyd reagent. It is less sensitive, but gives less false positive results.

Bulletin de l'Académie de Médecine, Paris

91: 1-24 (Jan. 2) 1924

*Gastric Ulcerations. V. Pauchet and Hirschberg.—p. 12.
*Suggestions from School Inspection. A. Loir and Legangneux.—p. 14.
*Synergy and Chronaxy. G. Bourguignon.—p. 16.
Calculation of Body Surface. Faillie.—p. 21.

Gastric Ulcerations.—Pauchet and Hirschberg report the results of their examination of the stomach after resection in 130 cases. There were 71 simple ulcers, 50 cancers and 9 ulcer-cancers. Of the apparently simple primary ulcers, 11 per cent. were in reality cancers.

Suggestions from School Inspection.—Loir and Legangneux point to the frequency (almost the rule) of unhygienic postures in children. They attribute it to the custom of wearing the clothes (including underwear), until the garments are too short for the children. Parents do not realize that the clothes become too narrow also. This checks the normal development of the chest.

Synergy and Chronaxy.—Bourguignon continued his investigations on the time of latency between a certain electric stimulus and the contraction of muscles (chronaxy). He found that those extensors which are real antagonists of the flexor muscles have a double chronaxy. Extensors which are in reality synergists of the flexors have in these movements the same chronaxy. He reports some interesting changes in hemiplegia.

Paris Médical

517-532 (Dec. 29) 1923

Melanoderma and the Sympathetic. Laignel-Lavastine.—p. 517.
*Body-Fluids in Cancer. A. Kotzareff and L. Weyl.—p. 524.
Pathology and Treatment of Pericardial Adhesion. Grossmann.—p. 526.
*Incessant Hiccup. P. Stratigopoulos and Psaraftis.—p. 529.

Body Fluids in Cancer.—Kotzareff and Weyl confirm that the hematologic examination of the blood in cancer does not reveal any specific signs. They noted changes in the blood serum during the second or third month of experimental cancer in rabbits. A 1 per cent. solution of tannin provokes in the serum of these animals a much stronger flocculent precipitate than in the controls. These serums contain more amino-acids and amins than the serum in the controls. This biologic phenomenon can be observed in any case of cell destruction, whatever its origin.

Incessant Hiccup.—In the case described by Stratigopoulos and Psaraftis, the various sedatives and rhythmic traction of the tongue failed to give relief. They believe that the hiccup was due to irritation of the phrenic nerve caused by the participation of its sheath in an inflammatory process of the tissue around the enlarged tracheobronchial glands.

37-52 (Jan. 12) 1924

*Gastric and Duodenal Ulcer. R. Savignac.—p. 37.
Profuse Hemorrhage from Small Ovarian Cyst. Melchior.—p. 39.
Treatment of Senile Cataract. G. Pacalin.—p. 41.
*Nephrorosein. O. Krukowsky.—p. 46.
Complications of Intraspinal Anesthesia. Sophoteroff.—p. 48.

Differential Features of the Pain with Gastric and Duodenal Ulcers.—Savignac distinguishes two types of the pains which appear characteristically at a certain time after a meal and are relieved by alkalis. In case of an ulcer in stomach or duodenum, these pains return regularly for four or five days at least, and then—at first—are followed by a period of relief. In affections other than ulcer (dyspepsia with gallstones, colitis, ptosis, etc.) the periods are either consistently irregular or the pain occurs regularly every day from the beginning of the affection.

Nephrorosein.—Krukowsky believes that nephrorosein—the urine pigment described by Arnold—is pathognomonic of tuberculosis. He found it in the urine even before the Pirquet skin tuberculin reaction became positive. The pigment disappears when the diazo reaction is present. The technic is simple: The urine is mixed with an equal volume of concentrated hydrochloric acid and one drop of a solution of sodium nitrite is added. The pigment is extracted with amyl alcohol, and is identified with the spectroscope. It gives an absorption spectrum between the *b* and *F* lines, while urorosein absorbs light between the *D* and *E* lines.

Presse Médicale, Paris

32: 13-24 (Jan. 5) 1924

*Pregnancy Pernicious Anemia. C. Aubertin.—p. 13.
Injection of Ouabain into the Jugular Vein. Lutembacher.—p. 17.
Nonsurgical Drainage in Study of Bile Secretion. Rouillard.—p. 18.

Pregnancy Pernicious Anemia.—Aubertin thinks that we must accept a pregnancy autointoxication as the cause of pregnancy pernicious anemia. The fact that the blood of the fetus is normal in these cases shows that the element responsible for the anemia does not pass through the placenta, although the fetus may succumb from lack of sufficient nourishment from the blood. The woman's pallor, edema, albuminuria and dyspnea are often erroneously ascribed to pregnancy nephritis, but the small quantity of albumin in the urine—not over 0.5 gm. and often intermittent—the absence of hypertension and of azotemia testify against nephritis, and call for examination of the blood. The lack of benefit from heart stimulants shows that heart disease is not the causal factor. Anemia as the result of intractable vomiting is not accompanied by dyspnea, edema or albuminuria, and the anemia is mild. The special feature of pregnancy pernicious anemia is that expulsion of the fetus may be followed by recovery, and that recovery has never been known except when the uterus had been emptied. In all but one of his cases, the women had passed through repeated pregnancies close together, but instances are on record in which primiparae have been affected. The Wassermann reaction is sometimes positive, and treatment for syphilis aids in recuperation after expulsion of the fetus. The onset is insidious, until the waxy, greenish or yellowish pallor and anemia attract attention, but there is no emaciation. The edema seems to be an essential symptom of pregnancy pernicious anemia. The affection described by the old writers as "puerperal serous cachexia" was probably this type of anemia. The edema affects the legs, the back of the hands, the lids, and sometimes the walls of the trunk, and there may be ascites. Digestive disturbance is common, and in his cases Aubertin has frequently noted slight enlargement of the spleen. The temperature may be normal but often is slightly above normal, and the tendency to hemorrhage is minimal, at most rare epistaxis and exceptionally purpura. Hemorrhages in the retina may occur as in pernicious anemia of other kinds. He emphasizes that the diagnosis is never made until late. In his 53 cases, at the first examination he found 1,000,000-1,500,000 erythrocytes in 19; in 3 below 500,000 and only 13 were over 1,500,000. The hemoglobin index may be above normal although the hemoglobin percentage is low. The changes in the blood corpuscles are like those of any grave plastic anemia. The nucleated corpuscles are mainly normoblasts, but in one case with recovery, a third of the megaloblasts had a large vesicular nucleus, the protoplasm basophil. The leukocyte count was generally high in his cases, about 15,000, and it never reached the low level of the 4,000 common in pernicious anemia of other origins. Polynucleosis is the rule, generally reaching 75 or 80 per cent. and sometimes 85 per cent. Another feature of pregnancy pernicious anemia is the persistence of normal eosinophilia, or only slightly above normal. The platelets were low, coagulation normal. The anemia may terminate fatally just before or during or three weeks or a month after delivery, but death usually occurs the fourth or fifth day after the childbirth. A favorable termination is rare, but a few cases of recovery are on record. The improvement shows first in the number of erythrocytes and it proceeds rapidly, preceding the subjective improvement. Unfortunately, there is no clinical or hematologic criterion known to date which would indicate early the gravity of the anemia. Repeated subcutaneous injection of 30 to 100 c.c. of citrated blood seems to have been the most effectual form of treatment yet tried.

32: 25-32 (Jan. 9) 1924

*Modification of Intra-Ocular Pressure. L. Weekers.—p. 25.
*Painful Lean Amputation Stumps. R. Leriche.—p. 26.
*Drainage in Surgery. H. Hantcher.—p. 27.

Intra-Ocular Pressure as Molecular Concentration of Blood Is Modified.—Weekers has been experimenting on rabbits to determine the effects on ophthalmotonus of intravenous injections of hypertonic and other solutions and of distilled water. Whether injected by the vein, subcutaneously or into the peritoneum, the intra-ocular pressure was increased. This increase was mild and not durable, and was followed by a pronounced decline of the tension, which lasted longer. This seems to be a toxic action, independent of the mode of introduction. Large doses induced general disturbances which may prove fatal. Hence he warns against the use of injections of distilled water in treatment of patients.

Painful Amputation Stumps.—Leriche refers to small dry stumps, inclined to atrophy. The atrophy is generally ascribed to pressure from the prosthesis, but he explains that he has seen this type of stump only with low amputations of the leg and ankle, particularly when the soft parts seem too short and become fastened to the bone. When ulceration develops, it is small, hidden in some crevice or under some crust. The level of the amputation seems to determine the type of the consecutive vasomotor disturbances, but their filiation is always the same. He treats these painful "lean stumps" by cutting the bone again at some point where the skin is of good quality and not adherent to the bone. This fixation to the bone aggravates the vasomotor disturbances, and hampers the circulation in the end of the stump. He has found it useful to apply periarterial sympathectomy in addition to reconstruction of the end of the stump.

Drainage in Surgery.—Hantcher explains that a wound contains liquids with different physical characteristics, and resorption is going on constantly in the wound. A drain to be effectual should supply capillary attraction for each of the different kinds of fluids in the wound. None of the drains in use accomplish this, but he gives an illustrated description of a new style which drains by offering eight or more different open routes for capillary attraction, thus catering to pus and fluids of different viscosity and other physical characteristics. He first applied the principle by cutting a drain tube lengthwise in two and suturing the halves back to back, with or without wicks in the concave surfaces. Lately he has improved on this by using rubber ribbons which unite to form eight acute angles with the peak inward. These smooth rubber, open, acute angles drain very effectively. A cross section of the device looks like a cog wheel. One of his illustrations shows tumblers with the different kinds of drains, topped with absorbent cotton. In the one with this cog wheel shape, half the water has drained

out of the tumbler by a kind of siphon action, while the water in the drain-tube glass shows almost the same level as at first.

Progrès Médical, Paris

1-12 (Jan. 5) 1924

*Contraction of the Uterus. Forget-Urion.—p. 1.
Fulminating Pneumococcic Purpura. Nobécourt.—p. 3.

Contraction of the Uterus.—In protracted deliveries, Forget-Urion warns that it is important to think of hypertonia. The patient is restless and complains of pains in the loins; palpation is difficult on account of the tension and sensitiveness of the uterus. A contraction ring may exceptionally be felt; the cervix is thick, taut between contractions, and tender. Hot injections, emptying the bladder and rectum, administration of sugar and quinin will help to determine the tonicity of the uterus. In hypertonia, morphin is indicated. If pains are severe and dilatation insufficient to hasten the expulsion, we should have recourse to analgesics. When dilatation is almost complete injections of pituitary extracts or the forceps can be used. She expresses a preference for forceps, saying that it is difficult to control the effects of pituitary injections.

Scalpel, Brussels

77: 33-60 (Jan. 12) 1924

*Autogenous Vaccines in Recurring Gonorrhea. A. Gripekoven.—p. 33.
*Paralysis of Last Four Cranial Nerves. Hennebert.—p. 42.
Case of Acute Pancreatitis. Appelmans.—p. 45.

Autogenous Vaccines in Recurring Urethritis.—Gripekoven insists that new autogenous vaccines have to be made from time to time when the gonococci still lurk in the tissues. The benefit from this was particularly striking in a case in which no gonococci had ever been found, even from the first. A minimal number of gonococci had evidently persisted and had induced two local recurrences, although the man had repeatedly been pronounced cured by different physicians. Gripekoven cites a number of similar cases, some of from two to fifteen years' standing. Various specialists on different occasions had pronounced them cured, and some had married, but the latent urethritis flared up anew at times. Nothing but autogenous vaccines seems able to disclose the lurking gonococci responsible for the recurring urethritis and help to eradicate them.

Paralysis of Last Four Cranial Nerves.—Hennebert reports a case of Vernet's syndrome—the set of symptoms from injury of the nerves passing through the posterior foramen lacerum. Vernet has published several works since 1915 on this associated laryngeal paralysis.

Schweizerische medizinische Wochenschrift, Basel

54: 1-24 (Jan. 3) 1924

*Free Acid in the Stomach. H. Sahli.—p. 1.
Management of Placental Stage of Labor. G. Rossier.—p. 6.
*Thermoresistance of the Bacteriophage. R. Doerr and G. Rose.—p. 10.
Neuralgia, Myalgia and Psychalgia. R. Bing.—p. 13.

Free Acid in the Stomach Content.—Sahli discusses the futility of measuring the free acidity of the stomach content in the titration methods. During titration, the hydrochloric acid which is bound loosely to proteins, dissociates, and is also determined, together with the primarily free acid. Therefore he has abandoned his iodometric titration, and uses another method, which he calls titration of the indicator. He takes 10 c.c. of the filtered gastric juice and adds a definite amount (0.5 c.c.) of a dilute solution of methylviolet. He adds exactly the same amount of the dye to 10 c.c. of distilled water in another tube of the same caliber. A decinormal solution of hydrochloric acid is added to this colored water (not to the gastric contents), until the color is alike in both tubes. A third test tube, filled with the filtered contents and held before the tube containing water, makes the comparison of the tint easy. To avoid errors from a too strong dilution of the indicator, he uses a normal acid, if the acidity is too great. For titration of very low acidity, litmus is preferable to methylviolet. The method is simple, and the errors due to the presence of proteins and salts are very small when methylviolet is used.

Thermoresistance of the Bacteriophage.—Doerr and Rose do not confirm the possibility of distillation of bacteriophages. The thermoresistance depends on many factors. Aside from the optimal hydrogen ion concentration, the presence of small amounts of peptone protects the lysins. They are destroyed in a pure salt solution and especially in distilled water at 37 C. Addition of 0.001 per cent. calcium chlorid to a 1 per cent. solution of sodium chlorid had a protective action.

54: 25-76 (Jan. 10) 1924

Kidney Function Tests from Surgical Standpoint. F. Suter.—p. 25.
*Function of Tuberculous Kidney. H. Wildbolz.—p. 32.
Polycystic Kidney. de Quervain.—p. 50.
Bone Fistulas. H. Paschoud.—p. 51.
Exophthalmic Goiter. E. Bircher.—p. 54.
Hydatid Cysts in the Lungs. M. Jolliard.—p. 54.
Changes in Duodenum with an Ulcer. Clairmont.—p. 55.
Blood Calcium. H. Oltramare.—p. 55.
Angina Pectoris. W. Odermatt.—p. 56.
Pseudarthrosis in a Transplant. W. Odermatt.—p. 56.
Hour-Glass Tumors of Spine. Th. Naegeli.—p. 59.
Treatment of Cleft Palate. T. Naegeli.—p. 62.
Treatment of Megacolon. Monnier.—p. 63.
Oidium in Gastric Ulcer. F. Merke.—p. 63.
Antiseptics and Chemotherapy. Ritter.—p. 67.
Chondromas of Ribs. P. F. Nigst.—p. 70.

Surgical Congress.—This issue contains the papers read and discussed at the tenth annual meeting of the Swiss Surgical Society.

Function of Tuberculous Kidney.—Wildbolz finds very early functional changes in tuberculous kidneys. The method of examination requiring catheterization of the ureters should never last over half an hour or at the utmost three quarters of an hour.

Pediatria, Naples

32: 1-56 (Jan. 1) 1924

Acute Poliomyelitis in Naples. R. Jemma.—p. 1.
*Virulence of Diphtheria Bacilli. M. Gerbasi.—p. 8.
*The Agent of Scarlet Fever. C. Catteruccia.—p. 31.
Dysenteriform Syndromes in Young Infants. A. Laurinsich.—p. 34.
Paratyphoid B with Malta Fever. G. Castorina.—p. 44.
Leishmaniasis. M. Mallardi.—p. 47.

Virulence of Diphtheria Bacilli.—Gerbasi investigated the relation of the toxicity of the diphtheria bacilli to the severity of the disease in children. He found a parallelism in otherwise healthy children, while the disease was always severe in the weak ones. The virulence for guinea-pigs has no definite relation to the toxicity of the strains.

The Agent of Scarlet Fever.—Catteruccia found in the cerebrospinal fluid of patients with scarlet fever the cocci described by Cristina. Only a few were visible in the sediment before incubation of the fluid. Cultures were positive.

Policlinico, Rome

31: 1-38 (Jan. 7) 1924

Varying Agglutinability of Typhoid Bacilli. D. De Blasi.—p. 1.
*Return of Tonsil After Tonsillectomy. G. Bilancioni.—p. 5.
*Acute Exophthalmic Goiter. L. Manginelli.—p. 8.
Reform in Hospital System. E. Ronzani.—p. 12.
Carbon Tetrachlorid in Therapeutics. A. Filippini.—p. 16.

Return of Tonsil After Tonsillectomy.—Bilancioni removed adenoids with the tonsils at the age of 3, and the girl developed well until the age of 10 when a tendency to mouth breathing was explained by discovery of a large tonsil; the right tonsil space was vacant. The new tonsil was removed and proved microscopically to be a true tonsil. The blood showed abnormal numbers of lymphocytes and eosinophils.

Acute Exophthalmic Goiter.—The symptoms of toxic goiter developed abruptly two weeks after the onset of an attack of thyroiditis in the woman aged 26. The exophthalmos and other symptoms persisted after the subsidence of the thyroiditis. Manginelli protests against ascribing exclusive importance to the thyroid in such cases, insisting that there is a combination of nervous and endocrine disturbances, each of which requires special measures. Treatment should include organotherapy, radiotherapy or surgical measures as indicated, and electrotherapy for the sympathetic or parasympathetic nervous system according to which is the most involved.

31: 39-73 (Jan. 14) 1924

System for Functional Tests of the Liver. G. Sabatini.—p. 39.
*Rat-Bite Disease. S. Giraldi.—p. 44. Idem. G. Bezzi and N. Moratti. —p. 48.
Heredity in Cardiovascular Disease. S. A. Sanvitale.—p. 49.

Rat-Bite Disease.—Giraldi says that the period of incubation in the two cases he reports was thirty-five and forty days. Under neo-arsphenamin treatment, with small doses, the cure was prompt and complete.

Archivos Brasileiros de Medicina, Rio de Janeiro

13: 1085-1156 (Nov.) 1923

*Physiology of the Trigeminal Nerve. A. Brandão, Jr.—p. 1085.
Education of the Public in Hygiene. A. L. B. Barreto.—p. 1103.
*Treatment of Gonococcus False Rheumatism. G. Trigueros.—p. 1108.

Physiology of the Trigeminal Nerve.—Brandão discusses the sensory innervation of the soft palate, as there was no loss of sensibility in a case described in which, two months previously, he had resected the intracranial sensor root of the gasserian ganglion for painful spasms of the face. Another question raised by his case is the duality of the innervation of the organs of taste. The epiphora in his case subsided after the operation, although the normal lacrimal secretion did not seem to be modified. His operation had entailed pronounced hyperemia of the conjunctiva but the oculocardiac reflex was normal.

Gonococcal Arthritis.—Trigueros injects a 1:1,000 solution of salicylic acid around the joint involved, and in nearly every case the pain is relieved at once and the inflammation subsides, leaving the function of the joint unimpaired. He describes twelve typical cases to show the almost invariably prompt and permanent benefit. In one case the pain in elbow and wrist was still so intense by the forty-ninth day that morphin was required, but the cure was complete with a week of these daily injections. The doses were 2, 5 and 3 c.c. He states further that dressings impregnated with a 5 per cent. solution of sodium chlorid aided materially in reducing the edema. These dressings have proved also a potent adjuvant in reducing the edematous swelling of acute articular rheumatism as well as in this gonorrheal pseudorheumatism.

Archivos del Hospital Rosales, San Salvador

15: 1-51, 1923

*Mycetoma. Salvador Peralta Lagos.—p. 5.
Survey of Recent Ophthalmology. E. R. Silva.—p. 28.

Mycetoma.—Eighteen plates accompany this description of three cases of mycetoma of the foot, with black granules, and a case of actinomycosis of the hand requiring amputation. A summary in English follows.

Medicina Contemporanea, Lisbon

42: 9-16 (Jan. 13) 1924

Evils of Quackery. J. Geraldes Barba.—p. 9. Cont'd.
*Pulmonary Syphilis. Candido Borges Pereira.—p. 12.

Pulmonary Syphilis.—Borges Pereira reports two cases in which tentative treatment for syphilis was followed by recovery when pulmonary tuberculosis had long seemed certain. One of the patients was known to be syphilitic. The presumptive diagnosis was based on the absence of the tubercle bacilli from the sputum, the location of the lesions in the middle or base of the right lung, the restriction to this one side, and the absence of fever. The radiologic findings differed also considerably from those customary in pulmonary tuberculosis.

Deutsche medizinische Wochenschrift, Berlin

50: 1-32 (Jan. 4) 1924

*Variability of Germs. F. Neufeld.—p. 1.
*Curability of Cancer. R. Werner and E. Borchard.—p. 3.
Botulism Antiserum. H. Hetsch.—p. 6.
*Lipoids in Serodiagnosis. F. Klopstock.—p. 8.
*Catheterization of the Ureters. L. Casper.—p. 9.
*Hereditary Syphilitic Eye. P. Wätzold.—p. 11.
*Gonorrheal Bartholinitis. Hübner.—p. 13.
Staining Tubercle Bacilli. Zimmermann.—p. 14.
*Treatment of Pulmonary Edema. H. Zimmer.—p. 16.
Treatment of Enteritis. Stappert.—p. 16.
Recent Progress in Orthopedics. H. Debrunner.—p. 16.
Mortality in Europe. E. Roesle.—p. 18.
*Robert Koch's Diary. F. Kleine.—p. 21.

Variability of Germs.—Neufeld investigated with his co-workers the changes of virulence which occur in some pathogenic micro-organisms during the passage through the skin or mucous membranes of animals. It was almost impossible to infect or to immunize with such microbes after they became avirulent. He believes that the importance of these facts is overlooked by epidemiologists (influenza) and by physicians experimenting with vaccines and serums.

Curability of Cancer.—Werner and Borchard have collected from the literature over 13,000 histories of patients with malignant tumors observed for three years, and over 5,000 observed for over five years. They give various statistics on the results of treatment.

Lipoids in Serodiagnosis.—Klopstock added lecithin to a 1 per cent. solution of serum. Esbach's reagent then produced a precipitate, while the control, without lecithin or without serum, remained clear. Addition of lecithin to Wassermann's extract of tubercle bacilli acts in the same way. The principle of introduction of a second colloid as sensitizer is the basis of many colloidal reactions.

Catheterization of the Ureters.—Casper gives the history and reviews the application of catheterization of the ureters. He says that he was the one who demonstrated the method to Albarran, who has been recently proclaimed as the inventor.

Hereditary Syphilitic Eye.—Wätzold examined the eyes of syphilitic fetuses and infants. Many spirochetes were present, especially in the circumference of the cornea and in the equatorial part of the choroid.

Gonorrheal Bartholinitis.—Hübner injects 2 to 3 c.c. of citrated blood 0.5 cm. above and below the opening of the duct in gonorrheal bartholinitis. The blood is injected as deep as to the surface of the gland. He had perfect results in ten patients (fifteen glands). An abscess contraindicates the method, which can be used only in beginning cases.

Treatment of Pulmonary Edema.—Zimmer arrested pulmonary edema in a girl poisoned with carbon monoxid by injecting intravenously 5 c.c. of a 5 per cent. solution of calcium chlorid.

Robert Koch's Diary.—Kleine begins in this issue the publication of Robert Koch's diary written during his trip to Africa in 1906-1907 to study and treat trypanosomiasis.

Klinische Wochenschrift, Berlin

3: 1-48 (Jan. 1) 1924

*Chemistry of Colloids and Medicine. W. Pauli.—p. 1.
*Uremic Hyperpnea. H. Straub and K. Gollwitzer-Meier.—p. 5.
*Blood Volume at High Altitudes. F. Laquer.—p. 7.
*Metabolism of Tubercle Bacilli. H. Braun and S. Kondo.—p. 10.
*Dermatitis Herpetiformis and the Thyroid. G. A. Rost.—p. 14.
*Lactation and Lack of Vitamins. A. Eckstein and A. v. Szily.—p. 15.
*Metabolism in Diabetes. H. Feyertag.—p. 17.
Treatment of Pyopneumothorax. Unverricht.—p. 19.
Physiology of the Capillaries. W. Heubner.—p. 20.
Action of Vegetative Poisons. Y. Okamoto.—p. 20.
*Complement Fixation and Instability of Colloids. H. Sachs, A. Klopstock and N. Takenomata.—p. 21.
*Diabetes Insipidus. Gänsslen and Fritz.—p. 22.
Functional Tests of the Heart. E. Magnus-Alsleben.—p. 23.
Malaria in Germany. E. Martini.—p. 26.
The Blood Platelets. W. Schultz.—p. 30.

Chemistry of Colloids and Medicine.—Pauli reviews the results of recent investigations which have brought the colloids nearer to the chemical views instead of the physicochemical. The colloidal particles of a gold sol do not consist of the pure metal. The atoms are aggregated around a negative ion of the gold salt, which gives them their electric charge and suspension stability. Such ions which are present in extremely small quantities in every colloidal solution, including the proteins, are the substratum of a colloidal reaction while the colloid itself serves only as an indicator of it. He discusses the probability that the proteins in the blood are present as carbamins, and the significance of carbon dioxid for the maintenance of this form.

Uremic Hyperpnea.—Straub and Gollwitzer-Meier confirmed in uremic dyspnea a lowering of the alkali reserve. This form is usually associated with retention of nitrogen. In less severe nephritis and in hypertension, they observed sometimes a type of dyspnea without akapnia. They attribute the symptom to circulatory changes in the brain centers (cerebral hyperpnea).

Blood Volume at High Altitudes.—Laquer observed with Griesbach's congo-red method at Davos (altitude 1,560 meters) an increase of about 5 per cent. in the blood volume. The hemoglobin and number of erythrocytes increase also. The total increase in the circulating hemoglobin in his cases was about 13 to 15 per cent.

Metabolism of Tubercle Bacilli.—Braun and Kondo found that tubercle bacilli cannot grow without the presence of mineral compounds of sulphur, phosphorus and magnesium. Potassium enhances the growth. They can assimilate ammonia or nitrates, but no amino-acids without the presence of low carbon compounds (acetic acid, glycerin or glucose).

Dermatitis Herpetiformis and the Thyroid.—Rost found that thyroidectomized rabbits did not form creatin from guanidin-acetic acid after ingestion of serum from a patient with dermatitis herpetiformis. They are able to do this after ingestion of normal serum, but not after serum from thyroid-ectomized animals, as Stuber found recently. It is interesting that such patients have recurrences of the herpes if they use iodin.

Lactation and Lack of Vitamins.—Eckstein and Szily fed mother rats with a diet which produces rickets when given to young rats. The suckling rats remained small, and all of them had a zonular cataract. The authors assume a predis-position of organs which changes with the age.

Metabolism in Diabetes.—Feyertag states that no changes were apparent in oxygen consumption in diabetes during glycosuria and after administration of insulin. This confirms Falta's view on the primary absence of an increase of metabo-lism in diabetes. The consumptive character of the disease is due exclusively to the disturbance of assimilation, which lowers the value of the food.

Complement Fixation and Instability of Colloids.—Sachs, Klopstock and Takenomata point out that many substances (peptone, tuberculin, colon bacilli) increase the instability of the globulins of the serum. This leads to nonspecific com-plement fixation. It may be partly avoided by performing the reaction in the cold.

Diabetes Insipidus.—Gänsslen and Fritz describe a family in which diabetes insipidus has been inherited as a dominant factor since 1680. The healthy mother of a patient had the disease in the last part of that pregnancy, while she remained healthy when bearing a healthy child.

Monatsschrift für Geb. und Gynäkologie, Berlin

64: 253-376 (Nov.) 1923

*Thyroid-Sexual Insufficiency. L. Borchardt.—p. 253.
Study of the Rectovesical Ligament. K. Fink.—p. 263.
*Treatment of Menstrual Disturbance. A. von Fekete.—p. 267.
*Pregnancy with Heart Defects. H. R. Schmidt.—p. 279.
*Jaundice in Eclampsia. W. Oppenheimer.—p. 289.
Pregnancy After Bilateral Mammectomy. Schneider.—p. 295.
Forceps in Relation to Child Mortality. A. Gamper.—p. 297.
*Puerperal Fever. K. Fink.—p. 305.
*Febrile Abortion. F. Grabich.—p. 308.
*Function of Corpus Luteum. J. Matsuno.—p. 317.
Chemicals Injected Not Stored in Genital Organs. Richter.—p. 323.
*Diathermy in Gynecology. W. Lindemann.—p. 333.
*Prevention of Chloroform Syncope. H. Strube.—p. 351.

Insufficiency of the Thyroid-Sexual System.—Borchardt outlines the clinical picture of disturbances from deficient functioning of the thyroid at the critical periods of puberty, parturition and the menopause. The manifestations may take the form of myxedema, scleroderma or mild hypothyroidism from general weakening of the thyroid function. He describes a case in which sporadic myxedema developed after a child-birth. Endogenous obesity is the most frequent manifestation of thyrosexual insufficiency at the menopause. After the stress of a childbirth, it may manifest itself as oligomenorrhea, amenorrhea, falling of the hair, rheumatic pains or headaches. His practical conclusion is that in all forms of thyroid-sexual insufficiency, thyroid treatment is required, even when there is a tendency to grow thin rather than fat. The doses must be cautious, possibly extremely minute, and the course must be closely supervised.

Menstrual Anomalies.—Fekete's study of the factors involved in disturbance of menstruation has failed to demonstrate that derangement of the internal secretion of the ovaries is respon-sible for menstrual anomalies. The vasomotor system seems to be more influential in this respect. He incriminates the vasomotor system not only for inadequate and excessive menstrual hemorrhage but also for dysmenorrhea. A large proportion of menstrual disturbances can be favorably influ-enced by organotherapy. He ascribes this to the general tonic action therefrom rather than to any specific effect, as he has witnessed equally favorable effects follow intravenous injec-tion of a fivefold concentrated Ringer's solution on alternate days. In a recent two-year period he applied organotherapy in 160 cases of menstrual anomalies; the effect was favorable in 76 per cent. but the improvement was permanent only in 66 per cent.

Estimation of the Outlook with Heart Disease in the Preg-nant.—Schmidt states that 0.38 per cent. of the 10,027 women delivered at the Bonn Maternity had some form of heart disease, and almost 50 per cent. of the twenty-three with severe decompensation died soon after delivery. Only 30 per cent. of the twelve women with mitral stenosis passed through the pregnancy without permanent injury, and 50 per cent. died at delivery. The compensation failed in nine of the twelve during the first third of the pregnancy, showing that the mere fact of the pregnancy imposes a strain on the heart even before the circulation is mechanically hampered. But if compensation is maintained, an otherwise healthy heart with a valvular defect can stand the stress of pregnancy without harm. Any signs of cardiac insufficiency (outside of sub-jective disturbances, enlargement of the liver or edema) render the outlook graver the earlier they appear. The longer the delay in such cases before interrupting the pregnancy, the graver the prognosis.

Jaundice in Eclampsia.—Oppenheimer relates that in 142 cases of eclampsia in the last ten years, jaundice was noted in 10 per cent., and no chloroform or chloral had been given in five of this group of fourteen cases. The mortality was no higher than in the cases of eclampsia without jaundice (19.7 per cent.). He remarks that the Hijman van den Berg bilirubin test may throw light on such cases.

Puerperal Fever.—Fink is an advocate of early laparotomy in puerperal peritonitis. Not much harm is done even if it proves to have been unnecessary while it is the only means of safety under other conditions. Ether treatment of the abdominal cavity has given good results as an adjuvant in his experience.

Febrile Abortion.—Grabich's hand was forced by menacing hemorrhages and he curetted the uterus in 100 recent abortion cases. He was impressed with the exceptionally favorable course and outcome after this active intervention. It is not necessary to rinse out the uterus, and it is dangerous in case the wall has been perforated. After curetting, ergot, the icebag and other measures to strengthen the patient are indispensable.

Function of Corpus Luteum.—Matsuno presents evidence to sustain his assumption that the corpus luteum has an inhibit-ing influence on menstrual hemorrhage. Amenorrhea results when it is functioning to excess, while excessive or atypical bleeding is observed with deficient functioning.

Diathermy in Gynecology.—Lindemann has gonococcal infection of the uterine cervix mainly in view, as this is peculiarly amenable to diathermy. The vagina allows better access in diathermy than through the skin, and a combination of a vaginal or bladder and rectal electrodes is often useful. A cap on the vaginal electrode fits over the cervix. Bones and layers of fat hinder the passage of the heat.

Prevention of Syncope in General Anesthesia.—Strube quotes Mikulicz' remark that every general anesthesia is an experiment, and he urges the surgeon to experiment on his own body to appreciate the difference between the smarting in the nose and the reflex action therefrom as the chloroform is inhaled with or without a preliminary 1-5 per cent. cocain spray. He advocates spraying the nose in this way as a routine preliminary to general anesthesia. He is convinced that chloroform syncope and the like are the result of some inhibiting reflex action entailed by the irritation from the chloroform in the nose.

Wiener Archiv für innere Medizin, Vienna

7: 207-441 (Dec. 1) 1923

*Neurogenous Adams-Stokes Syndrome. H. Kahler.—p. 207.
*Congested Kidney. O. Klein.—p. 219.
Thrombosis of Inferior Vena Cava. R. Löwy.—p. 243.
*The Veins and Water Metabolism. H. Mautner.—p. 251.
Sulphur Injections and Protein Therapy. E. Maliwa.—p. 311.
*Bone Marrow Function Test. P. Habetin.—p. 329.
Physical Versus Roentgen-Ray Findings. K. Hitzenberger and H. Elias.—p. 355.
Case of Congenital Heart Defect. W. Raab et al.—p. 367.
Defective Liver. K. Paschkis.—p. 415.
Iodin Titration of Urine. Szczepanski and Wegierko.—p. 435.
"Treatment of Gastric Ulcer." R. Lenk, et al.—p. 441.

Neurogenous Adams-Stokes' Syndrome.—Kahler's patient was a young woman suffering from cerebrospinal syphilis. She had attacks of loss of consciousness which were followed (not preceded) by arrest of the heart action. No dissociation was present, but atropin did not prevent the attacks. The necropsy revealed no signs of disease of the conducting system. The dorsomedial nucleus of the pneumogastric was degenerated.

Congested Kidney.—Klein found at the height of decompensation in cases of heart disease a distinct deterioration of the kidney functioning. Overstrong diuretics which act on the tissues may cause a dangerous hydremia.

The Veins and Water Metabolism.—Mautner investigated the pathologic significance of the functional occlusion of the hepatic veins discovered by Pick and himself. This function is most apparent in the liver veins in dogs, but it is evident also in other veins, especially the pulmonary. The hepatic veins are closed by the parasympathetic and are opened by the sympathetic. Histamin, peptone, anaphylactic shock in dogs and hypotonic salt solution close the veins; epinephrin, caffein, theobromin and hypertonic solutions open them. Pituitary extract closes these veins and also the artery and the portal vein, so that the liver remains small. Closing of the veins is followed in the other instances by a congestion of the capillaries and subsequent increased lymph flow. Alimentary intoxication of infants and the "hemoclastic crisis" are explained from the same viewpoint.

Bone Marrow Function.—Habetin injects 10 c.c. of a 5 per cent. solution of sodium nucleinate subcutaneously, and counts the white cells in the preceding and following days. Normal persons reacted with an increase of about 40 to 60 per cent. of the cells. Typhoid and malaria gave low figures.

Wiener klinische Wochenschrift, Vienna

37: 1-26 (Jan. 3) 1924

Pathologic Anatomy: Inaugural Lecture. G. B. Gruber.—p. 2.
*Cause of Baldness. R. O. Stein.—p. 6.
*Agglutination Kinship. F. Hamburger and H. Czickeli.—p. 10.
*Prognosis of Syphilis. A. Arpási.—p. 11.
Roentgenology of Gallbladder. M. Haudek.—p. 12.
Malignancy of Embryomas. E. Preisecker.—p. 13.
The Fight Against Venereal Disease. E. Finger.—p. 14. Cont'd.
Proposed Law on Physicians. L. Frey.—p. 17.

Cause of Baldness.—Stein believes that the theory that seborrhea is the main cause of baldness, is entirely out of the question. Seborrhea affects both sexes, and it also affects the whole scalp of the man. Yet baldness occurs practically only in men, and does not affect the whole scalp. Examining the typical baldness in young men, he had the impression that the whole affection is only the pushing up and back of the normal anterior margin of the hair. This led him to observations on the anterior borders of the hair in normal subjects. He found that this border forms an arc in children and women. After puberty, however, the hair at the side of the forehead in man begins to fall out, and he considers this as a typical secondary sex character, which he calls the "frontal calvities of adolescents." It is known that this part of the frontal region is also a point of predilection for secondary sex characters in certain male mammals. Another center of loss of hair is the parietal region. He found the bald triangles on the forehead in a case of premature puberty, and in some women with other masculine characters, especially hypertrichosis. The anterior border of the hair forms a perfect arc in eunuchoids, just as in children. Thus baldness is only a secondary male sexual character on a seborrheic soil.

Agglutination Kinships.—Hamburger and Czickeli cultivated two strains of colon bacilli which were agglutinated by the serums of all of twenty children with colon bacillus cystitis. The other strains were not always agglutinated. The injection of some of them produced agglutinins against other strains, but not against the strain used.

Prognosis of Syphilis.—Arpási points out that some syphilitic eruptions are symmetric. This speaks for an early affection of the central nervous system.

Casopis lekaruv ceskych, Prague

63: 1-32 (Jan. 5) 1924

*Chronic Infectious Endocarditis. L. Syllaba.—p. 1.
*Puerperal Fever. V. Rubeska.—p. 4.
Postoperative Death. A. Jirásek.—p. 11.

Chronic Infectious Endocarditis.—Syllaba finds that the affection called endocarditis lenta in 1910 by Schottmüller was described repeatedly by W. Osler from as early as 1885, under the name of "chronic infectious endocarditis." He emphasizes the importance of daily examination of the patient. A transitory diastolic aortic murmur may lead to a correct diagnosis. An erythema with a few small hemorrhages in the region of a joint, which had been painful for a short while, is also a valuable sign. He found erythrocytes in the sediment of the urine in fourteen of his sixteen cases. They may be present before albuminuria appears, and indicate an embolic nonsuppurative nephritis. In one of his cases the monocytes increased to 17 per cent.

Puerperal Fever.—Rubeska recommends preventive vaccination with streptococci, although this does not prevent the infection with absolute certainty. He considers vaccine therapy and injections of colloidal metals as the best conservative treatment.

Acta Chirurgica Scandinavica, Stockholm

56: 309-401 (Dec. 22) 1923

*Gastric Ulcer in Child. L. Norrlin.—p. 309.
*Two-Joint Muscles in Spastic Conditions. N. Silfverskiöld.—p. 315.
*Cinematization of Artificial Hand. E. Platou.—p. 331.
*Lymphogenic Metastatic Osteitis. W. Gejrot.—p. 357.
*Malignant Sacrococcygeal Chordoma. R. Andler and A. Schmincke.—p. 365.
*Volar Plaster Bed for Laminectomy. S. Lundberg.—p. 386.
*Principles of the Organization of the Public Medical Relief Service in Sweden. J. W. Nordenson.—p. 392.

Perforation of Gastric Ulcer in Girl Aged 7.—Norrlin merely sutured in two planes the ruptured callous ulcer in the pylorus region, left a drain in each subphrenic cavity, and drew out the appendix through a buttonhole below for appendicostomy. Although twenty-four hours had elapsed since the perforation and the peritonitis was well under way, the child has had no further disturbances during the nearly five years since. Between the age of 2 and puberty, he has found only five cases in the literature, including two fatal perforated cases and three without perforation given successful surgical treatment. (In French.)

Treatment of Spastic Hemiplegia.—The associated movements or transmission effect in uncrossed muscles connected with two joints can be remedied by shifting one end of the muscle to a point below one of the joints, thus making a one-joint muscle out of it. (In English.)

The Movable Artificial Hand.—Platou gives an illustrated description of the sixteen cases in which he made one or two canals in the stump out of a bridge of skin, and thus allows volitional control of the artificial hand. Twelve have used their prostheses for from three months to three years, and in only one instance have the canals been tender. The muscular power of the canals has increased in all but two, and ten have expressed their satisfaction with the cinematization. A working claw can be used for severe labor and then be changed for the artificial hand at will, as one changes a garment. (In English.)

Metastatic Osteitis.—Gejrot reports three cases in which from some superficial infected wound of the hand infection, spread by lymphatics, reached and developed osteitis in the sixth rib, clavicle or scapula. (In English.)

Malignant Sacrococcygeal Chordoma.—The two cases reported and survey of the literature confirm the unfavorable

prognosis. Even after apparently successful removal, local recurrence always proved fatal in from three months to five years. (This and the following article are in German.)

Immobilization for Injured Spine.—Lundberg expatiates on the advantages of the volar plaster bed he has used in two cases, the patient lying comfortably prone although absolutely immobilized. Then a dorsal bed is fitted to the back as usual. The front and the back bed can be removed at will, and the two together allow safe and easy transportation.

Principles of the Organization of the Public Medical Relief Service in Sweden.—Nordenson relates that the aim of this service is to provide people of moderate means with good medical treatment at a reasonable price. The system dates from the seventeenth century: a staff of salaried general practitioners is distributed throughout the country. The rate of fees at present is 1 to 3 Swedish crowns for a consultation in the physician's office. The towns have their own salaried medical officers, with fees fixed officially. The population of Sweden is about 5,954,316, and the staff of physicians now comprises 350, and of town physicians 200. The number of private practitioners and specialists now amounts to 600, many of whom occupy posts in the army medical corps. The aim now is to have in every province a general hospital with well equipped departments for the specialties. At present there are twelve of this type. Venereal diseases have been given free institutional treatment during the contagious stage for more than a century, every taxpayer to this day being taxed a few pennies for these "cure houses." The drug and medicine trade is a state monopoly, and the state confers the life privilege of the local trade. Public accident and old age pension insurance have been introduced, but as yet there is no national health insurance although it is now contemplated.

Hygiea, Stockholm

85: 993-1024 (Dec. 31) 1923

*Expectant Treatment in Abortion. E. Bovin.—p. 993.

Expectant Treatment of Incomplete Abortion.—Bovin states that the abortion was incomplete in about 30 per cent. of the 3,806 deliveries in eleven years in his service. Strictly expectant treatment was applied in 54 per cent. of the 1,141 febrile cases, and the mortality was only 1.3 per cent. The mortality in the 518 cases in which active intervention was tried was 2.9 per cent. In 206 cases the obstetrician's hand was forced by menacing hemorrhage, and the mortality in this group was 2.4 per cent. The mortality was 1.9 per cent. in 156 febrile cases in which the uterus was not evacuated until the fever had subsided, while it was 8 per cent. in 75 cases in which the subsidence of the fever was not awaited. His experience indicates that it is safer to wait for at least six days after the subsidence of the fever before evacuating the uterus. One case of recovery was particularly instructive. On account of the puerperal sepsis and menacing hemorrhage he removed the uterus. Palpation had disclosed merely a taut parametrium, but the operation showed thrombi in the smaller veins and a streptococcus abscess in the anterior wall of the uterus and in one ovary. If he had attempted to arrest the hemorrhage with intra-uterine measures, the infection would undoubtedly have taken a virulent course. He thinks there is no doubt that the danger of spreading the infection from active measures is graver than the danger from the focus of infection lying quietly in the uterus. The latter allows the production of antibodies against the infection. Of 14 known criminal abortions, only 2 recovered spontaneously and 2 after evacuation of the uterus; the others died.

Ugeskrift for Læger, Copenhagen

86: 1-24 (Jan. 3) 1924

*Heredity as a Factor in Disease. E. Meulengracht.—p. 1.
Third Case of Strychnin Poisoning from Child's Eating Easton Syrup Tablets. P. Hempel-Jörgensen.—p. 15.

Importance and Application of Knowledge of Heredity in Study of Causes of Disease.—Meulengracht takes pernicious anemia as a concrete example to illustrate his views, with seven family trees. This is a vast and unexplored field for clinical research. Future research will certainly be devoted more to the internal causes of disease, that is, the individual predisposing tendency. No one worker can accomplish much in this line; it requires systematic concerted research as in a race biology institute.

86: 25-46 (Jan. 10) 1924

*Surgical Treatment of Pulmonary Tuberculosis. J. Gravesen.—p. 25.
The Physician's Responsibility from the Legal Standpoint. M. Fenger. —p. 38. Idem. J. Kuhn.—p. 43.

Surgical Treatment of Pulmonary Tuberculosis.—This report of 211 cases of artificial pneumothorax, traced for from three to thirteen years, was presented to open the discussion on this subject at the annual meeting of the British Medical Association. It was to have been presented by Saugman, who died a few months before; Gravesen was Saugman's assistant. Of the total 211 cases, 38 per cent. have been permanently cured. A corresponding number of similar cases at the sanatorium (Vejlefjord) in which artificial pneumothorax proved impracticable, showed only 11 per cent. cases of permanent clinical recovery. He analyzes the different indications, and the outcome in 110 cases treated by extensive thoracoplasty since 1916. Positive benefit was obtained in 60.9 per cent.; negative results in 30.5 per cent., with an operative mortality of 8.6 per cent.

Upsala Läkareförenings Förhandlingar, Upsala

29: 1-164 (Jan. 15) 1924. German Edition

Causes of Shallowness of Anterior Chamber in Primary Glaucoma. J. W. Nordenson.—p. 1.
*Blood Sugar in Epileptics. R. Holmström.—p. 17.
*Percutaneous Insulin Treatment. A. Wallgren.—p. 57.
*The Oldest Swedish Pharmacopeia. E. L. Backman.—p. 63.
Anthropology of the Lithuanians. G. Backman.—p. 99 and p. 127.

The Blood Sugar in Epileptics.—Holmström suggests that as the sugar content of the blood is the result of a number of factors, by estimating the glycemia we throw light on the condition of the involuntary nervous system at the moment, and obtain a figure which may serve as an index for comparison. Little has been written on the carbohydrate metabolism of epileptics; between the seizures the blood sugar content and carbohydrate tolerance are within normal range. The blood sugar increases at the time of a seizure or series of seizures. When a seizure is induced for diagnostic purposes—an abortive seizure is sometimes induced by subcutaneous or intravenous injection of cocain (two in twenty cases by subcutaneous and five in seven by intravenous injection of 0.05 gm. of cocain)—a peculiar form of blood sugar wave is observed. Epinephrin or electric stimulation never induced a seizure in his trials. The epileptic condition evidently involves the involuntary nervous system as a seizure impends.

Percutaneous Insulin Treatment.—Wallgren's tables show that insulin is evidently easily absorbed through the intact skin, the blood sugar promptly showing the effect of the inunctions. The effect was more pronounced in infants than in older children as the blood was examined hour by hour. Six children were thus treated with the insulin ointment; all were convalescing from some disease, and control tests with an ointment free from insulin failed to show any influence on the blood sugar. The dose was from 3 to 15 insulin units, and the blood sugar dropped from 0.094 to 0.049 in six hours and from 0.08 to 0.054 in the younger children. He also applied this percutaneous technic systematically in treatment of severe diabetes in a girl, aged 3, after conditions had been restored to clinically normal by the usual subcutaneous injections of insulin. Then the first daily injection of 2 units of insulin was suppressed and 20 units were given by inunction an hour and a half before breakfast. The second daily injection was given subcutaneously as before. This treatment was continued for a week, with apparently perfect result and then was dropped on account of the lack of insulin. Ten times as much insulin is required by the percutaneous route, but the effect seems to be more lasting; in some of his trials the blood sugar was lower the following day than on the day of the experiment. It may be possible to use a less expensively prepared insulin for inunctions. But the fact that a hormone can be resorbed through the intact skin is interesting, he says, even if this mode of treatment has too many drawbacks for practical use.

The Oldest Swedish Pharmacopeia.—Backman discusses the publications in this line, dating from 1686 and 1777, especially from the standpoint of folklore. The article is in Swedish.